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CONTEMPORARY SOCIOLOGICAL THEORIES

THROUGH THE FIRST QUARTER OF
THE TWENTIETH CENTURY

PITIRIM SOROKIN



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TO MY WIFE

CONTEMPORARY SOCIOLOGICAL THEORIES

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Minneapolis, October, 1927

EDITOR'S INTRODUCTION

STUDENTS of sociological theory are prone to fall into two contrasting types of error, either they accept speculative explanations of social phenomena with credulity, or they dismiss all theorizing as unscientific escapes from the hard reality of laborious research. Professor Sorokin's book is a sound antidote for both extremes.

By assembling quantitative data on social phenomena from an amazing variety of reputable sources, he confronts unfounded speculation with cold facts, and provides the student with tangible criteria for evaluating theory. By exhibiting time and again the recurrence of type theories, he shows how necessary it is for the research student to take pains to inform himself about the works of other students before plunging into fact-gathering and then drawing inferences which he naively considers are original with himself. In these two respects the present book is a substantial corrective for these most egregious forms of error often found in the works of contemporary social scientists.

The book is quite unique among works on social theory because of the enormous amount of factual and quantitative data assembled as the test of theories that various writers have expounded and which so often are content to rest their validity on distinctions of a purely verbal sort. Professor Sorokin has no patience with what may be termed "substitute speech reactions."

If young students of sociology will read this book with care they will save themselves much wasted time in following theories that are mere "painful elaborations of the obvious" and incidentally discover how pure speculative theorizing leads unerringly to logical contradiction and fallacy.

Aside from the characteristics just mentioned this book is a contribution to the scientific literature of sociology in that it deals primarily with contemporary theories. Earlier theoretical conceptions are considered only as it becomes necessary to link up

the present with the past to preserve a balanced sense of historical perspective

Serious students of the other social sciences, anthropology, economics, history and political science, will find this work a useful addition to their libraries, and a demonstration of the values and limitations of contemporary sociological theories. In this connection the work has real synthetic significance.

F. STUART CHAPIN

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INTRODUCTION

OBJECT OF THE BOOK—This book deals with the sociological theories of the last sixty or seventy years. Its objective is to survey the principal types of these theories and to find to what extent they are scientifically valid. All other approaches to a study of the theories, such as, for instance, why a certain theory is set forth by a certain author, or why it has become popular, or what is the personality of an author, are intentionally excluded. The reason is that the first task may be solved independently from the others. Moreover, it is impossible to embrace in one book all the possible approaches to the study of sociological thought. This book deals with the character and the validity of the theories, but does not deal with their authors. So much for this point.

REASONS FOR ITS WRITING AND PUBLICATION—In the opinion of the writer, the primary task of a scholar is to deal with facts rather than theories. If, however, disregarding this, he writes a book about other books, he does it because he has several reasons. In the first place we do not have any single book which gives a concise survey of all the principal sociological theories of the period mentioned. We have many an excellent monograph about a certain problem or a sociologist, but all such cover only a small part of the whole field.¹ We have several valuable works in the history of sociological thought,² but they pay inadequate attention to the last period of sociology. There are many valuable essays in the history of the sociology of a certain country for the last few decades,³ but again, they cover only a part of the field.

¹ They are indicated further.

² See the text of the book.

³ For America see SMALL, ALBION. Fifty Years of Sociology in the United States, *American Journal of Sociology*, May 1916. BARNES, H. E., American Psychological Sociology. *The Sociological Review* for 1922, 1924, 1925. GILLIN, JOHN L., Presidential Address in *Publications of the American Sociological Society*, Vol. XXI. For England BARNES, H. E., English Sociology, in *Publications of the American Sociological Society*, Vol. XXI. For Germany, VIERKANDT, A., Die Überwindung des Positivismus in der deutschen Soziologie der Gegenwart. *Jahrbuch für Soziologie*, Vol. II. BARTH, P., *Die Philosophie der Geschichte als*

Finally, even such valuable works as P. Barth's *Die Philosophie der Geschichte als Soziologie*, or F. Squillace's *Le dottrine sociologiche*, or M. Kovalevsky's *Contemporary Sociologists* (in Russian), or H. E. Barnes' *The New History and the Social Studies*, or papers of F. H. Hankins in H. E. Barnes' *The History and Prospects of the Social Sciences*, and of Charles A. Ellwood in E. C. Hayes' *Recent Developments in Social Sciences*, are either not translated into English, or are not up to date, or deal with the historical rather than the sociological aspect of the theories, or else they are too short to give a sufficient account of the principal schools in contemporary sociology. The situation is such that the writer has found difficulty in obtaining any book suitable as a text for the graduate students in his course in Contemporary Sociological Theories. Such a situation is the first excuse for the publication of the book.

In the second place, the field of sociology has grown to such an extent that, for a sociologist who is devoted to a study of a special sociological problem, it is extremely difficult to have an adequate knowledge of the whole field of the science. Being absorbed in his special study, he does not have time to go through the hundreds of various sources where information about the theories is given. Meanwhile, some approximate knowledge of the general situation in contemporary sociology is necessary for any sociologist. Not knowing that a certain theory has been developed long ago, or that a certain problem has been carefully studied by many predecessors, a sociologist may easily devote

Soziologie, Leipzig, 1922, Vol. II, VON WIESE, L., 'German Sociology,' *The Sociological Review*, Vol. XIX, No. 1, BRINKMANN, CARL, 'German Sociology, Publications of the American Sociological Society, Vol. XXI. For Italy, MICHELS, ROBERT, 'Elemente zur Soziologie in Italien,' *Kolner Vierteljahrshäfte für Soziologie*, III Jahrgang, 4 Heft, translated and published in *Revue Internationale de Sociologie* and in *Suspilstvo*, Vol. III-IV. For France, see DUPRAT, G. L., 'La psycho-sociologie en France,' *Archiv für Geschichte der Philosophie und Soziologie*, Vol. XXX, Heft 1 and 2, FAUCONNET, P., 'Durkheim Sociological School,' *The Sociological Review*, Vol. XIX No. 1. For Russia SOROKIN, P., 'Die Russische Soziologie im Zwanzigsten Jahrhundert,' *Jahrbuch für Soziologie*, Vol. II, translated and published in *Suspilstvo*, Vol. III-IV, and in an abbreviated form in *Publications of the American Sociological Society*, Vol. XXI, HECKER, J., *The Russian Sociology*, N. Y., 1915. For Czechoslovakia, BLÁHA, ARNOST, 'Die teitgenossische tschechische Soziologie,' *Jahrbuch für Soziologie*, Vol. II. These works are only representative samples of the studies of this type.

his time and energy to the discovery of a new sociological America after it was discovered long ago. Instead of a comfortable crossing of the scientific Atlantic in the short period of time necessary for the study of what has been done before, such a sociologist has to undergo all the hardships of Columbus to find, only after his time and energy are wasted, that his discovery has been made long ago, and that his hardships have been useless. Such a finding is a tragedy for a scholar, and a waste of valuable ability for society and sociology. As a rule, explorers do not receive anything for such "discoveries." Meanwhile, if the energy and time had been given to the study of an unexplored part of the sociological field, sociology might have been enriched, and society would have received something from its scholar. This consideration is not a mere possibility, but a real situation which has happened many times. For this reason the books which give a general survey of the whole field of a certain science are not entirely useless.

In the third place, sociology has not suffered during the period mentioned from a lack of various theories. They have been produced in a great abundance and have been appearing like mushrooms after rain. At the present moment the field of sociology is overcrowded by a multitude of various and contradictory systems. Every novice who enters the field is likely to be lost in it, and what is more important, such a novice has the greatest difficulty in discriminating between what in all these theories is valid and what is false. Therefore, one of the most urgent tasks of the contemporary sociologist is to separate what is really valid from that which is false or unproved in these theories. Such a separation is likely to be as necessary as the setting forth of a new hypothesis. Providing that it is done carefully, a critical analysis of the contemporary sociological theories may be of a real service to the science of sociology. This task is attempted in the book and is its primary purpose. A lack of space has not permitted me to criticize the theories in detail, nevertheless the critical remarks are so developed as to suggest to a thoughtful reader the principal shortcomings of a theory or hypothesis. Not adding other reasons, the above excuses may

be sufficient to explain why this book about other books has been written

PLAN OF THE BOOK AND DISTRIBUTION OF THE MATERIALS —

The number of sociologists and sociological works for the period mentioned has become so great as to make impossible a substantial analysis of the contributions of all the individual sociologists in one volume. If such an attempt is undertaken it is likely to result in a kind of a biographical dictionary with all its plusses and minuses. Among its minuses is liable to be a lack of a logical and coherent perspective of the whole field. This shortcoming is so serious as to make necessary some other method of survey which will be free from it. As we are not concerned with the biographies of sociologists the best way seems to be thus to segregate all the important sociological theories into several classes or schools, and to analyze not so much the works of individual sociologists as the fundamental principles of the schools. Providing that in each school several of the most representative individual theories are given, that all the principal works are mentioned, and that all its principal generalizations and propositions are described, such a plan appears to be more plausible scientifically than any other one. It is more economical than the chronological and biographical plan of a dictionary. It is likely to give a more systematic and coherent knowledge of the field than a distribution of the materials on an incidental chronological basis, or on the data of the works of several individual sociologists picked up by a surveyor.

The above explains the logical construction of the book. It is in detail as follows. All the theories are divided into a few major schools each one being subdivided into its varieties, and each variety being represented by several of the most typical works. At the beginning of each school, or its variety, a short paragraph about its predecessors is given to connect the present sociology with its past. A characterization of the principles of the school or theory is followed by a critical paragraph to show its fallacies or shortcomings. This plan, to be sure, has its own disadvantages, but they seem to be not so great as those of any other method.

THE CLASSIFICATION OF THE SCHOOLS OF CONTEMPORARY SOCIOLOGY—The classification of the schools and their varieties in the book is as follows

- I Mechanistic School
 - Social mechanics
 - Social physics
 - Social energetics
 - Mathematical sociology of Pareto
- II Synthetic and Geographic School of Le Play
- III Geographical School
- IV Biological School
 - Bio-organismic branch
 - Racialist, Hereditarist and Selectionist branch
 - Sociological Darwinism and Struggle for Existence theories
- V Bio Social School
 - Demographic sociology
- VI Bio-Psychological School
 - Instinctivists' sociology
- VII Sociologistic School
 - Neo-positivist branch
 - Durkheim's branch
 - Gumplowicz's branch
 - Formal sociology
 - Economic interpretation of history
- VIII Psychological School
 - Behaviorists
 - Instinctivists
 - Introspectivists of various types
- IX Psycho Sociologistic School
 - Various interpretations of social phenomena in terms of culture religion, law, public opinion, folkways and other 'psycho social factors'
 - Experimental studies of a correlation between various psycho-social phenomena

It goes without saying that this classification is quite conditional. It has a significance only as far as it helps to distribute a vast

material into relatively few classes. It may, however, be replaced by any other classification if it happens to serve an investigator's purposes better. In other words, the classification is to be regarded as purely technical rather than something principal and dogmatic.

SOME ADDITIONAL POINTS —The impossibility of surveying separately all the numerous individual theories makes some subjectivism inevitable in the choice of which theories are to be taken as representative and which are to be merely mentioned. It is probable that in spite of the writer's desire to be impartial, some amount of subjectivism has slipped into the book. Nevertheless, the writer hopes that the amount is not very great. Probably almost all the competent sociologists would agree that the theories taken as representative for a certain school or its variety are really typical and have been set forth earlier than many other similar theories.

There is, however, one point which may meet with disagreement on the part of sociologists. This point is that the writer has given relatively less attention to the textbook type of sociological works than to the monographic investigations, and to the speculative and 'philosophical' works rather than to the factual, quantitative, and special studies. This has been done deliberately and the writer takes full responsibility for it. The very nature of a textbook forces its author to fill it with commonplaces which are but a popularization of the results obtained by monographic studies. There are a few exceptions, and they are noted in the book, but the rule remains and explains the writer's standpoint. As to the speculative systems of social philosophy, we must discriminate those 'social philosophies' which have given a deep insight into the nature of social phenomena from those which have been a mere 'word polishing.' The speculations of the first type deserve the greatest attention, the speculations of the second type must be passed by.

Finally, there is no need to stress the great importance of the factual and "inductive" studies. To them, primarily, belongs the credit of a real promotion of sociology as a science. They represent the only basis for deciding whether a certain philosophical generalization is valid or not. Through such studies we are

given relatively accurate sociological correlations and causal formulas, and in such studies mainly lies the hope of a further perfecting of sociology as a science. Hence the attention given to them throughout the book. Their results are used to test the validity of the general sociological theories. Their conclusions are utilized for the demonstration of an inadequacy in a theory. Their data are laid down to show the existence or non existence of a correlation in a certain field. In addition, a special chapter is added where the principal studies of this type are surveyed. It is certain that not all of the studies are mentioned, but probably no important type is omitted.

The next point to be mentioned is this. The book deals exclusively with those sociological theories which face the facts, that is, which try to describe and analyze social phenomena as they are. All the theories which try to preach what ought to be, in what way the social world should be changed, and what ought to be done for this purpose, are omitted. The reason is that as far as such theories are busy not with what was, is, and will be, but with what ought to be, or ought not to be, they are out of science. Although valuable from a practical standpoint, they belong to a field beyond that of science.

Last, but not least, almost all the important sociological theories are criticized in this book. The writer wants to stress the fact that his criticism of a theory does not mean at all that he does not appreciate it, or does not have respect for its author. The opposite conclusion is true. This should be borne in mind to understand the writer's real attitude. His criticism is due to the very nature of the science,—it appeared with criticism, has grown with criticism, and lives with criticism. If we care to promote sociology as a science, a critical attitude must be displayed by all sociologists as regards any sociological theory, without any exception whatsoever. Being grateful and reverent to all the builders of sociology, the best way in which we may be faithful to them is to separate what is true and what is false in the large mental heritage left by them. Otherwise, instead of a scientific sociology we will have a pseudo scientific complimentary art, having nothing in common with a real science.

**CONTEMPORARY
SOCIOLOGICAL THEORIES**

CHAPTER I

THE MECHANISTIC SCHOOL

IN THIS school may be classified all sociological theories which interpret social phenomena in the terminology and concepts of physics, chemistry, and mechanics. Its various branches exhibit some differences of detail, one branch gives preference to the interpretation *modo geometrico*, another, *modo mechanico et physico*, still another, *modo energetico*, and, finally, another, *modo mathematico*. These differences will be elaborated in some detail as we proceed, but they do not annul the general similarity that pervades all branches of this school, which for the sake of brevity may be designated in the following discussion as "The Mechanistic School."

I PREDECESSORS

The essential elements of the mechanistic interpretation of man's nature, behavior, and social activities were set forth long ago. Since the mechanistic school views all social phenomena as mere variations of physical phenomena, its essential characteristic is a monistic conception of the universe as a whole, including the universal application of all natural law, or unity of all its laws. For this reason potentially all the monistic conceptions of the world, and especially the materialistic monism, contained one of the substantial elements of the mechanistic school. As is well known, the monistic philosophies in their materialistic, as well as their idealistic varieties, are very old. We find them in the remotest past. Thales' statement that "the essence of all things in the universe is water," or Anaximenes' theory that "the essence" is air, or the materialistic and atomistic monism of Empedocles, Leucippus, Democritus, Anaxagoras, and Lucretius are representative samples of that monistic interpretation of the universe in which psychical and social phenomena were viewed as mere variations of material phenomena, more than that, psychical and social

phenomena were interpreted in a strictly mechanistic way by these Greek philosophers, especially in the theories of materialistic atomism. Similar theories existed also in ancient India and China. Another element of the mechanistic interpretation of social phenomena, that was known also to the past, is the application of mathematics to their interpretation and a belief in the universality of quantitative regularities, or laws, in the dynamics of social, as of all other, processes. These elements were strongly emphasized by Pythagoras and his school, as well as by the atomistic philosophers mentioned above. Further, both elements of the mechanistic sociology are found in the theories of the Epicureans and the Stoics. Cicero stresses their presence in the theory of Epicurus.¹ Seneca and certain other Stoics, with the rather materialistic monism, regarded even time, virtue, and evil as "things," and even as sensual or physical things.²

Generally speaking, in the periods of conspicuous progress in the physical and mathematical sciences, their conclusions have been carried over into the field of social phenomena, and, as a result, have called forth a mechanistic interpretation in that field also. This explains why "the mechanistic sociology" became a dominant type of interpretation for social phenomena in the seventeenth century. This was the conspicuous century for creative work in physics, mechanics, and mathematics. As Professor E. Spektorsky rightly declares, it was not the centuries of the Renaissance, nor even the eighteenth (which actually produced but little in these fields), but the seventeenth century which was the most productive epoch in the progress of physical and mathematical sciences.³ To support this statement it is enough to mention

¹ "In physics plurimum posuit," says he about the teaching of Epicurus. See CICERO, *De finibus bonorum et malorum*, Lib. I chap. VI, XIX, and *passim*.

² See *Stoicorum veterum fragmenta*. Collegit J. ab Arrium, Volumen III, Lipsiae, 1903 pp. 20 ff. Seneca, *Epistola* 117, "placet nostris quod bonum est corpus esse," writes Seneca to his correspondents.

³ See the excellent work of SPEKTORSKY, E., *The Problems of Social Physics in the Seventeenth Century*. Vol. I, Warsaw, 1910, Vol. II Kiev, 1917 in Russian *Problema sotsialnoy fiziki v XVII Stoletii*. This work is probably the best for the study of social physics of the seventeenth century. I am indebted to Professor Spektorsky for kindly sending me the only copy of his work which he himself could obtain. The work is so valuable for the history of social, political, and ethical thought, that it ought to be translated to make it available for the foreign specialists.

the names of Newton, Galileo, Copernicus, Descartes, Leibnitz, Pascal, Huygens, Kepler, Francis Bacon, R. Boyle, and Leeuwenhoek, though many others might be added

The extraordinary progress of physics, mechanics, and mathematics during this century called forth an extraordinary effort to interpret social phenomena, in the same way that mechanics had so successfully interpreted physical phenomena. As a result we have "The Social Physics" of the seventeenth century, which, at least in its plan and aspirations, has not been surpassed by all the mechanistic theories of the nineteenth and twentieth centuries. More than that, in their efforts to create a social mechanics the thinkers of the seventeenth century laid down those principles of psychology, of the social and political sciences, which at the present moment are regarded by many as something that has been quite recently discovered.⁴ The essential characteristics of the social physics of the seventeenth century may be summed up as follows. First, in contrast with the preceding thinkers the social theorists of the seventeenth century (Hobbes, Spinoza, Descartes, Weigel, Leibnitz, and others) abandoned anthropomorphism, teleologism, moralism, and hierarchism in their study of man's nature, mentality, behavior, and social phenomena. Second, they began to study social and psychic phenomena as a physicist studies physical phenomena, rationally but objectively. Man was re-

⁴ Such for instance is the behavioristic school in psychology. Its aspiration to study man's behavior and mentality without any reference to "inner psychical experience," that is, to study them as a kind of mechanistic phenomena, is nothing but a modification of the mechanistic and quantitative psychology of the seventeenth century (Descartes, Leibnitz, Spinoza, Malebranche, and others), which viewed man as an automaton, and tried to study the psychical processes as physical ones, measuring and interpreting them in terms of physical mechanics. See SPEKTORSKY, Vol I, pp 81 ff., 339 ff., Vol II p 408. The same is true of their efforts to be objective in their methods, and to study social and psychical phenomena as specialists in physics study theirs and so be free from any ethical, religious, and other considerations. It is true also of their efforts to measure everything in a strictly scientific way. In sociology and social psychology recent theories of conation (L. Ward) or theories of "instinctive" interpretation of social and behavioristic facts, or such theories as Thomas's "four wishes," or Ratzenhofer's and A. Small's "sixfold interests" (declared by Small to be "the latest word of sociology"), or many other varieties of this type of "interpretations," all were formulated by Hobbes, Spinoza, Weigel, Malebranche, G. Grotius, Descartes, Leibnitz, J. Am. Komensky, and others. See SPEKTORSKY, *ibid.*, Vol II, pp 411-422, and *passim*. The same must be said of Pareto's or Tarde's "monadologies."

garded as a physical object—a kind of machine⁵ or physical automaton. His life and action were regarded “as a regular functioning of the human machinery, his death, as a wreck of it.” “There was not admitted any vitalistic force.” Descartes and Hobbes compared death with the stopping of a watch mechanism.⁶ The human soul is interpreted as a movement as regular as any motion studied in mechanics. “*Vita motus est perpetuus*,” says Hobbes. “*Notre nature est dans le mouvement*,” wrote Pascal. “Human life is nothing but a circulation of blood and circulation of thoughts and desires,” explains Malebranche. Where there is movement there is inertia, according to mechanics, and inertia is to be recognized also in human society and psychical movement. It is manifested in a human being’s tendency to preserve himself and to look after his own interests. “*Suum esse conservare, suum sibi utile quaerere*,” says Spinoza. This is a universal law of nature, and it is the law of human nature also. Viewing the human soul in this mechanical way, the physicists of the seventeenth century tried to analyze it into its components, as a mechanism may be disassembled into its parts. The corresponding components of the human soul were found in a series of primary “tendencies,” or “conations” (self preservation, gravitation to or repulsion from other human beings, etc.) or “affections,” or “appetites.” Classifying them (six principal affections, according to Descartes, or three, according to Spinoza), they regarded a human being as an embodiment of these components, and human activity as a result of these conations (gravitation or repulsion or relationship). Their mutual gravi-

⁵ “*Hominis corpus quatenus machinamentum quoddam machinamentum humani corporis*,” wrote Descartes. “*L’on peut fort bien comparer les nerfs de la (humaine) machine aux tuyaux des machines de ces fontaines, ses muscles et ses tendons aux autres divers engins et ressorts. De plus, la respiration et autres telles actions sont comme les mouvements d’une horloge*,” and so on. *Renati Des Cartes Meditationes de prima philosophia Meditatio sexta* p. 43 of the Amsterdam edit., 1685 his “*l’Homme*,” in *Oeuvres*, Cousin, IV pp. 347-348. “*Quid est cor nisi elastrum quid nervi nisi chordae, articuli nisi rotulae*,” wrote Hobbes, *Leviathan*, Introductio, Opera, III, 1. “*Le corps de l’animal est une machine en même temps hydraulique, pneumatique et pyrololique une Espece d’un Automate Naturel, qui surpasse infiniment les Automates artificiels*,” says Leibnitz. See SPEKTORSKY, *op cit*, *passim*.

⁶ “The body of a living man differs from that of a dead man only as much as a watch or any other automaton when they are wound up differ from the same watch or automaton when they are broken.” DESCARTES, *Les passions de l’ame*, Art VI, *Oeuvres*, Cousin, IV, 41. SPEKTORSKY, *op cit*, Vol II, p. 410.

tation or repulsion results in a regularity of human activity and of psychical processes which, being similar to the regularity of physical movement, could be interpreted by the principles of mechanics. In this way they set forth "the mechanics of psychical processes" and of "human activity." Thus a human soul was interpreted as "a kind of astronomical system" in which different processes go on with the same regularity as in an astronomical system interpreted by mechanics. The "human individual was regarded as a kind of astronomical system of affections or other psychical elements bound together by mutual attraction or repulsion" ¹

From this it was easy to pass to the construction of "a social mechanics" or of "a mechanistic interpretation of society." "Society was regarded as a new astronomical system whose elements were human beings, bound together by mutual attraction or repulsion, like the atoms of physical substance." Finally, the mutual relationship of societies and of states was viewed again as a new system of balanced oppositions whose elements themselves were human groups. Thus we have gradually enlarging series of gravitations and repulsions (of man, society, groups of societies) which, according to Spinoza, did not constitute any specific realm in the kingdom of nature, but easily entered, as a part, into the mechanistic kingdom of the universe without a break in its mechanistic structure (Spektorsky, Vol II, p 422). The scheme of the social order may thus be seen to be in three parts, as follows

- 1 *The human being* an astronomical system composed of the attraction and repulsion of conations,
- 2 *Society* an astronomical system composed of the attraction and repulsion of individuals, and
- 3 *Mankind* an astronomical system composed of the attraction and repulsion of groups

From the above it is clear that any supernaturalism, indeterminism, any freedom of the will, were expelled from the sociological theories of these social physicists. They viewed all these phenomena as a result of the natural play of natural causes. Their purpose was to study these phenomena as a system of relationship,

¹ SPEKTORSKY, Vol II, pp 411-422

to measure these relations and to give the results of such a study in the forms of the laws of social mechanics

Hence, the mathematical method of their studies Of any science they demanded that it be a science of mathematical type *Generalem quandam esse debere scientiam, eandemque . Mathesim universalem nominari* (Descartes) is the motto of their method "Without mathematics human beings would live as the animals and beasts," Weigel declared "All truths are discovered only through measurement," said Malebranche Hence their geometrical and mathematical method Hence their conception that the truth is nothing but quantitatively described relationship Hence their attempts to create "Pantometrika" "Psychometrika," "Ethicometrika," "Sociometrika", in brief, a universal quantitative science of relations applied to the study of all phenomena, including psychical, ethical, political, and social ones (See Spektorsky, Vol I, pp 328 ff) "*Mens, mensura, quies, motus, positura, figura sunt cum materia cunctarum exordia rerum*" Such was their motto H Grotius interpreted the phenomena of law '*sicut Mathematici figuras a corporibus semotas considerant*', Leibnitz explained juridical relations in *modo geometrico*, with charts and diagrams, Weigel and Puffendorff drew a series of circles of human actions '*ad analogiam systematis Copernicæi*' '*In societate inter homines nihil fere agitur quod a numerorum et mensurae scientia non dependeat*' claimed Richard Cumberland⁸ Politics was interpreted "*per magnitudinem, figuram et motum*" This is not all In order that these declarations and aspirations be realised the attempt became necessary to build "social mechanics" factually And we see indeed some attempts to do this The conceptions of space, time, gravitation, inertia, and force or power are the fundamental principles by which physical mechanics succeeded in interpreting the motion of physical objects, beginning with that of atoms and ending with that of the planets, stars, and systems of the universe The social physicists of the seventeenth century tried to do the same as the physicists themselves In the first place they constructed the conception of a moral or social space in which social, and moral, and political movements go on It was a kind of space

⁸ See CUMBERLAND, RICHARD, *Disquisitio philosophica de legibus naturæ*, 1671

analogous to physical space, and superposed upon it. To the position of a material object in physical space, there corresponded, in social space, the conception of *status*, as of sex, age, occupation, freedom, religion, citizenship, and so on. In this way they constructed a system of social coordinates which defined the position of man in this moral space as exactly as the system of geometrical coordinates defines the position of a material object in physical space.⁹ Physical mechanics explains the motions, also, of physical objects by the principles of inertia and gravitation. Similarly, social mechanics regarded the social processes as a result of the gravitation and inertia of human beings or groups. In physical mechanics any physical system is regarded as an equilibrium. In the same way, any society or group or state was regarded by the social physicists as a system of equilibrium of centrifugal and centripetal forces. A series of political institutions was interpreted as a system of counter balances. The social and political organization of a society, and the phenomena of power and authority were interpreted as resultants of the pressures of "social atoms" (individuals) and "social molecules" (groups). In this way these social theorists created "social statics" or a theory of social equilibrium, analogous to "statics" in physical mechanics.

They also laid down the elements of social dynamics. In mechanics motion or change is a function of space and time. Time also plays its rôle in the social mechanics of the seventeenth century, for these thinkers conceived the idea, not only of a status in moral space, but in moral time as well. This led them to constructions *in respectu ad durationem* and even to the theory of a specific *status quanticativus* with a specific "moral time." Historical and social events were viewed as motions or movements and time as a coefficient of motion. "*Tempus nihil aliud est quam magnitudo motus*," wrote Leibnitz. Any process came to be understood as a kind of mechanically moving object. "Time was depicted by a geometrical line, historical processes began to be illustrated by various curves, and an individual's life history, by a curve as of a falling body. Straight lines, parabolas, and spiral curves began to be used to describe these processes." In

⁹ Compare SOROKIN, P., *Social Mobility*, Chap. I.

brief, the physicists were the real initiators in the social, as well as in many other fields of science¹⁰ From the above it follows that the plan of social mechanics outlined by the thinkers of the seventeenth century was grand and magnificent indeed¹¹ If they did not succeed in realizing it more or less satisfactorily, it was not the fault of lack of effort, but that of the complexity of the problems studied In spite of many failures and childish statements, their effort to create a social physics yielded as a by-product a series of valuable contributions to the social and psychological sciences, contributions which at the present moment are being rediscovered as something quite new and unknown to the past

Furthermore, the mechanistic interpretation of social phenomena now in vogue is nothing but a repetition, with slight modifications of the principles laid down by the great thinkers of the seventeenth century, often, however, without any reference to their names or works It is true that some of the methods and conclusions of these earlier thinkers have been further developed in the biological psychological, statistical, and sociological works of the eighteenth and first half of the nineteenth centuries This has been the case with W Petty's seventeenth century study of

¹⁰ See SPEKTORSKY, Vol I, *passim*, and pp 328-554, Vol II, *passim*, and pp 450-628

¹¹ Especially interesting and imposing was the *Pantometrika* of a forgotten thinker, Edhard Weigel He perhaps more consistently than any other tried to create the universal quantitative science, "*Mathesis universalis*" On this problem Weigel worked for a long time and with great persistence Its importance grew in his opinion, as his efforts continued He tried to solve the problem in various ways Finally he was broken under its burden He became almost a maniac and began to see everywhere only figures, figures and figures According to his conception the universal mathematics or *Pantometrika*, was to be a specific science of quantity, as opposed to quality It ought to be because without quantitative knowledge there is no real knowledge applied, he contended, to any field of phenomena Any causal relation indeed any relationship whatsoever, may be measured Real scientific determinism is a quantitative determinism In this way all objects are resolved into quantity The quantities studied in *Pantometrika* were to be three kinds physical, moral, and terminological Under moral quantities Weigel subsumed economic value, social dignity, prestige, power, social achievements, services, crimes and so on All of these phenomena were to be measured Real moral philosophers or jurisconsults were to be mathematicians These ideas he tried to develop in detail in a series of works *Idea Matheseos Universynopsis*, etc 1669 *Unverss Corporis pansophics Prodromus de gradibus humanae cognitionis*, etc, Jenae 1672 *Corporis Pansophics Pantologia* etc About Weigel, see SPEKTORSKY, Vol I, pp 488-563

social and moral phenomena,¹² and with that century's deterministic and objective study of such phenomena irrespective of any religious or moral evaluation. Such later development was carried forward in ethics and psychology by Jeremy Bentham's "moral arithmetic," by Herbart's studies in "mechanistic psychology," and by others in the field of statistics. But the same cannot be said for the "social mechanics" of the seventeenth century, in the narrower sense of that term. Almost all attempts in that field which were made in the eighteenth and first half of the nineteenth centuries were but variations of the social physics of the seventeenth century.

Along the lines of social physics of the seventeenth century George Berkeley (1685-1753) constructed his theory of moral attraction and social stability.¹³ According to his "social physics," physical gravitation has its analogue. The centrifugal forces are manifest in the form of egoism, which drives persons apart, while the social instincts correspond to the centripetal forces, because they draw persons together. Society is stable when the centripetal forces are greater than the centrifugal. The role of physical mass in social mechanics is played by the population, the role of physical distance, by the homogeneity or heterogeneity of individuals.¹⁴ In brief, Berkeley's theory of moral attraction is a mere variation of the theories of the seventeenth century.

The same must be said of the majority of the mechanistic theories in sociology of the eighteenth¹⁵ and of the beginning of the nineteenth centuries. Some of the Encyclopedists may be included here. Saint Simon's attempts to interpret social phenomena in the light of Newton's law of gravitation and system of mechanics did not add anything essentially new to the social physics of the seventeenth century. Later on F. M. Ch. Fourier, among his many theories, made a sketch of the mechanistic inter-

¹² PETTY, W., *Several Essays in Political Arithmeticks*, 1699.

¹³ See BERKELEY, G., *The Principles of Moral Attraction*, Works, Fraser edition, Vol. IV.

¹⁴ Compare E. Bogardus' conception of "social distance," and F. H. Giddings' theory of the social rôle of "the consciousness of land."

¹⁵ See, for instance, LORD KANE, *Sketches of the History of Man*, 4 vols., 1788; DUNBAR, JAMES, *Essay on the History of Mankind in Rude and Cultivated Ages*, 1780; vide HUTH, H., *Soziale und individualistische Auffassung im 18. Jahrhundert*, 1907.

pretation of history but like many of his other theories it was not systematically developed and was set forth in a somewhat erratic and extravagant form. Finally Auguste Comte and A. Quetelet both show the influence of the seventeenth century's social physics especially in the terminology which they employ.

Social statics and social dynamics are the principal parts of sociology according to Comte while Quetelet even uses the term social physics as the title of his work. It should be distinctly stated however that this use of an earlier terminology is misleading for their interpretations of social phenomena were far from being the mechanistic interpretation of the seventeenth century. Since the second half of the nineteenth century this has begun to show decided symptoms of revival. Since that time there have appeared several works which though pretending to be a new interpretation of social phenomena have as a matter of fact moved along the general plan of social physics in the seventeenth century. Let us now turn to a survey and analysis of these recent recapitulations and developments. Modern representatives of this school of sociology are H. C. Carey, Voronoff, E. Solvay, L. Winiarsky, A. P. J. Barcelo, Haret, W. Ostwald, W. Bechtereff, Edgeworth, F. Carl, A. Bentley, T. V. Carver, Alfred J. Lotka and finally V. Pareto not to mention other names.¹⁶ Their works may be divided into four or five principal branches: the branch of social physics (Carey) of social mechan-

¹⁶ Of other works in which the authors claim to interpret social phenomena according to the laws of physics and mechanics but actually fail to do so may be mentioned the following: PLANTA, J. C. *Die Wissenshaft des Staates oder die Lehre vom Lebensorganismus* Chur 1852. ZACHARIA, K. S. *Vierzig Bucher vom Staate* 7 vols. 1839-43. MISMER *Principes sociologiques* 1880. DE MARINI *Sistema di Sociologia* Torino 1901. FISKE, J. *Outlines of Cosmic Philosophy* Lond. 1874. BAGEHOT, W. *Physics and Politics* N. Y. 1884. Summel and the formal school in sociology use extensively geometrical analogies and forms but trait is purely incidental to their theories therefore they have only the remotest relation to the mechanistic interpretation of social phenomena. (See "The Formal School" in this book.) Somewhat more mechanistic or energetist to some extent are the interpretations of economic and juridical phenomena given by HELM, G. *Die Lehre von der Energie* pp. 72 ff. Leipzig 1887 and by BONI, A. *Die Weltanschauung der Jurisprudenz* pp. 108 ff. A comparatively good (though a little elementary and out of date) characterization of the mechanistic school is given in F. Squillace's *Le dottrine sociologiche* Roma, 1902. Chap. I and Petre Trasca's *Polegomenes d'une Mécanique Sociale* Vol. II Paris, Alcan 1922. In G. Solomon's introduction to Bousquet's *Grundriss der Soziologie* Paris 1926.

ics (Barcelo, Haret, Lötka), the social energetics (E Solvay, W Bechtereff, W Ostwald, T N Carver, L Winiarsky), and finally of mathematico functional "pure sociology" (Pareto, Carli)

2 CONTEMPORARY SOCIAL PHYSICS

H C Carey's *Principles of Social Science*¹⁷ is one of the most conspicuous attempts in the second half of the nineteenth century at a physical interpretation of social phenomena. At the very beginning of the first volume of the *Principles* we find his emphatic declaration that "the laws which govern matter in all its forms, whether that of coal, clay, iron, pebble stones, trees, oxen, horses, or men" are the same¹⁸. Hence, the mechanistic monism which permeates his sociological and economic theories. In harmony with Carey's general "mechanistic" attitude are his theories that "man is the molecule of society",¹⁹ that association is only a variety of "the great law of molecular gravitation",²⁰ that "man tends of necessity to gravitate towards his fellow man," "that gravitation is here (in human societies), as everywhere else in the material world, in the direct ratio of the mass (of cities), and in the inverse ratio of the distance",²¹ centralization and decentralization of a State and of a population in the cities is nothing but a variety of centripetal and centrifugal forces working according to the laws of physical mechanics.²² As in physics the greater the difference of the temperature of two bodies the more intense is the process of the transmitting heat in the form of motion from one body to another, in a similar way, the

¹⁷ H C Carey was born in 1793 and died in 1879. The first volume of his *Principles* was published in 1858 (Philadelphia: Lippincott Co), earlier than H Spencer's *First Principles* (1862), *Principles of Biology* (1864), *Principles of Sociology* (1876) or *Principles of Ethics* (1879).

¹⁸ *Principles* Vol I 1858 p 62 compare his *The Unity of Law*, Chap IV, and pp 127 ff Philadelphia 1872.

¹⁹ *Principles* Vol I, p 41.

²⁰ *Ibid*, p 42.

²¹ *Ibid*, pp 42-43.

²² By the way, Carey was also one of the earliest representatives of the sociological school. (See the chapter about this school.) Like August Comte and the sociological school he contends that psychology is to be based on sociology and psychological phenomena are to be explained through social conditions, but not contrariwise. See *Principles* Vol I Chap II.

greater the differences between individuals or groups the greater is the power of association and commerce between them

Among purely agricultural communities association scarcely exists, whereas it is found in a high degree where the farmer, the lawyer, the merchant the carpenter the weaver, etc., are seen constituting portions of the community²³

Progress for Carey is a motion "Motion comes with heat, and heat results from association"²⁴

Here are other samples of Carey's mechanistic interpretation of social and economic phenomena

From the indestructibility of matter as the physical premise, it obviously follows that what we term production and consumption are mere transformation of substance Whether fossil coal is converted into heat, smoke, and ashes, corn into hogs' flesh, corn pork, turnips, and mutton into human muscle and brain, the uniform phenomenon is alteration of matter in its quality merely, without increase or diminution of its quantity In every transition of matter from one condition to another force is employed, or, as we say, consumed, and force is also evolved or produced Economic value is nothing but a kind of inertia, utility an equivalent of mechanical momentum

Consumption of a product is "nothing else than its passage from a state of inertness to one of activity"²⁵ Commerce is "a change of matter in place", "production, mechanical and chemical changes in the form of matter"²⁶

Such interpretations of social and economic phenomena involving comparisons of these phenomena with physical ones, and especially of man with various mechanisms go on throughout all Carey's works While the so called organismic school in sociology drew analogies between social and organic phenomena, the mechanistic school compares social processes with physical mechanisms In this respect Carey's works are representative

²³ *Ibid.*, p. 199 In this theory Carey much earlier than Simmel or Durkheim indicated the solidaristic or cohesive rôle of the social division of labor and, in a developed form, laid down the central idea of Durkheim's work. And yet, his name is not mentioned among the predecessors of Simmel and Durkheim.

²⁴ *Ibid.*, p. 61

²⁵ *The Unity of Law* pp. 127 ff

²⁶ See *Principles*, Vols I II III *passim*

of the latter and the above gives a general idea of his method of interpreting social and economic facts. Carey's own summary of his principles of social science is clear and comprehensive. It is given at the end of the third volume of his *Principles* and in abbreviated form it runs as follows ²⁷

Fundamental Physical Laws

Corresponding Social Forms of these Laws

The simple laws which govern matter in all its forms and which are common to physical and social science may be briefly stated thus

1 All particles of matter gravitate towards each other the attraction being in direct ratio of the mass and the inverse one of the distance

2 All matter is subjected to the action of the centripetal and the centrifugal forces the one tending to the production of local centres of action the other to the destruction of such centres and the production of a great central mass obedient to but a single law

3 The more perfect the balance of these opposing forces the more uniform and steady is the movement of the various bodies and the more harmonious the action of the system in which they are embraced

1 Man becomes subjected to the great law of molecular gravitation in the direct ratio of the mass and in the inverse one of the distance [Phenomena of association and concentration of the population]

2 Local centres attract man in one direction while great cities centres of the world attract him in the other

3 The more perfect the balance of these opposing forces the greater is the tendency towards the development of local individualities and towards the extension of association throughout the interior of communities with constant increase of the power of production in the value and freedom of man in the growth of capital in the equity of distribution and in the tendency towards harmony and peace

²⁷ *Principles* Vol III pp 466-468 Philadelphia 1867 For the sake of clearness I put his physical and social laws in two parallel columns

4 The more intense the action of those forces, the more rapid is the motion, and the greater the power

Heat is a cause of motion and force, motion being, in its turn, a cause of heat and force

The more heat and motion produced, the greater is the tendency towards acceleration in the motion and the force . towards decomposition of masses, and individualization of the particles, of which they are composed

The greater the tendency towards individualization, the more instant are the combinations, and the greater the force obtained

The more rapid the motion, the greater the tendency of matter to rise in the scale of form [from inorganic to organic world, and finally to man]

4 The greater is that motion and force, the more does man become subjected to the law of gravitation (association).

The more intense becomes the heat, the more rapid is the societary motion, and greater the force exerted.

Individuality is developed in the ratio of the diversity of the modes of employment, and consequently diversity in the demand that is made for the production of human power.

The greater the diversity, the greater is man's power to control and direct the great forces of nature, the larger the number of persons who can draw support from any given space, and the more perfect the development of the latent powers of both earth and man

Such are the essential physical laws and their social manifestation The above is sufficient to characterize the essentials of Carey's social physics and its similarity to the principles of the social physics of the seventeenth century

3 CONTEMPORARY SOCIAL MECHANICS

Probably the most typical samples of a transfer and direct application of the laws of physical mechanics to an interpretation of social phenomena are the works of Voronoff, Haret, Alfred Lötka and Antonio Portuondo y Barcelo²⁸ All these

²⁸ VORONOFF, *Foundations of Sociology*, Russ, 1909 HARET, *Mécanique sociale*, 1910 BARCELO, A *Essais de mécanique sociale*, Paris, 1925 previously part of it was published in *Revue Intern de Sociologie*, 1915 LÖTKA, ALFRED J, *Elements of Physical Biology*, Baltimore, 1925 Considerably different is the position of R. de la Grasserie who tried to create a Cosmic Sociology. In his theory of universal interaction and its varieties there is very little from mechanics See DE LA GRASSERIE, R, *De la cosmologie sociale*, Paris, Giard and Brière

authors start their discussion with an indication that "the body of human individuals, with all its organs and material elements, composes a system which is subjected to the laws of physical mechanics," like any other material system, and that, "in spite of man's desire to escape from the law of gravitation and from all other laws of mechanics, he cannot do it" (Barcelo) "The laws of the chemical dynamics of a structural system will be precisely those laws which govern the evolution of a system comprising living organisms" ²⁹ From such rather obvious premises these writers infer that "if the principles and the laws of social mechanics are applicable to all forms of force, they evidently are also applicable to man and to those psychical forces that are styled social" Having indicated these reasons, these writers proceed in a true mechanistic fashion to transfer the conceptions and terminology of mechanics into the field of social phenomena and to give us such mechanistic interpretations as the following According to Voronoff, association and coöperation are "addition and multiplication of forces", war and social struggle, "subtraction of forces", social organization, "an equilibrium of forces", degeneration and decay "disintegration of forces" law and judicial phenomena, "co relation of forces," and so on ³⁰

Similar though somewhat more complex are the mechanistic interpretations of Haret and Barcelo In their works the translation of the non mechanistic language of social science into that of mechanics goes on in the following way The individual is transformed into a material point, and his social environment into "a field of forces" (*champ de force*) As soon as this is done, there is no difficulty in applying the formulas of mechanics to social phenomena, all that is necessary is to copy these formulas, inserting the word individual instead of material point, and the term social group instead of a physical system or a field of forces Proceeding in this way, both writers give us a series of formulas of social mechanics like the following "An increase of kinetic energy of an individual is equivalent to a decrease of his potential energy" "The total energy of an individual in his field of forces remains constant throughout all its modifica-

²⁹ ЛѢТКА, *op cit*, p 16

³⁰ See VORONOFF, *Osnovaniya soziologii, bassem*.

tions" ³¹ "The total energy of a social group in regard to its action (*quant à une action*) at a moment of time (T_1) is equivalent to that total energy of the group which it had at an initial moment (T_0) plus the total amount of work which during this period of time (T_1-T_0) has been done by all forces exterior to the group which have influenced individuals or elements of the group," and so on ³² To complete the identity of social with physical mechanics these thinkers, especially Barcelo, supply a considerable number of mathematical formulas both simple and complex which they have extracted from the subject matter of mechanics. Such are the essential traits of this type of the mechanistic school in sociology ³³

4 CONTEMPORARY SOCIAL ENERGETICS

Different varieties of this branch of mechanistic theory are represented by the works of E. Solvay, the founder of the Solvay Institute in Belgium, by those of W. Ostwald, great chemist and theorizer of energetics, in the *Collective Reflexology* of a prominent Russian psychologist, W. Bechtereff (1857-), and in *The Economy of Human Energy* by a distinguished American economist, T. N. Carver (1865-). Let us briefly glance at the framework of their energetistic interpretations.

The least serious and the least valuable of these works is Bechtereff's *Collective Reflexology* ³⁴ Although Bechtereff has published several earlier investigations of recognized value the second part of this book is of questionable scientific worth. The explanation is probably to be found in the abnormal conditions of the Russian Revolution under which this work was produced. Having declared that "the laws of super-organic, that is, of social, phenomena are the same as the laws of inorganic and organic phenomena," into his interpretation of social phenomena he simply

³¹ "L'énergie totale de l'individu dans son champ se conserve constante à travers toutes ses modifications."

³² See HAREY *op cit*, Preface and *passim*. BARCELO *op cit*, *passim*.

³³ Much more elaborate are the formulas of LÖWKA. Several chapters of his book are really valuable and contribute something beyond a mere transfer of the formulas of mechanics into the social field.

³⁴ BECHTEREFF, W. *Kollektionsaya Reflexologia*, Russ., Petrograd, 1921, Part II, pp. 221-420.

imports all the laws of physics, mechanics, chemistry, and biology that he can find. We have a total of twenty three such laws governing social phenomena, the law of the preservation of energy, of the proportionality of the ratio of motion to motive force, of gravitation, of repulsion, of the equality of action with counter action, of similarity or homology, of rhythm, of inertia, of continuity of movement and change, of entropy, of relativity, of evolution, of differentiation, of reproduction, of elective generalization, of historical sequence, of economy, of adaptation of interaction, of compensation, of dependable relationship and of individuality.

In order to show what is meant by each of these "laws" in the field of social phenomena two or three illustrations may be given. The law of the preservation of energy means "that each person is an accumulator of energy," that "the spiritual personality of man never disappears completely," that "a social group, having created its culture, does not die spiritually" ³⁵ Such is the essence of this law. The law of the proportionality of the rate of motion with the moving force is illustrated by such facts as the following, that "an addition of reinforcements to an army facilitates a more rapid achievement of the military purpose in proportion to the additional force", or that "the development of a religious movement is reinforced through the performance of religious ceremonies," and so on ³⁶ The law of homology means that "social organization everywhere proceeds according to the same plan", that "the historical development of the civilizations of all peoples has been going on along the same general plan" ³⁷ The law of inertia is manifested in the existence of conservatism, tradition, habit, prestige, authority, and the like ³⁸ The law of relativity consists in the fact that everything in social life is relative, for example, "a theory of constitutional government may appear radical in an absolute monarchy, while the same theory may seem very conservative in a democratic country" ³⁹ These

³⁵ *Ibid*, pp 225-230

³⁶ *Ibid*, pp 314-319

³⁷ *Ibid*, pp 270-282

³⁸ *Ibid*, pp 292-307

³⁹ *Ibid*, pp 230-240

samples are sufficient to indicate the general character of Bechtereff's "law of social energetics"

The social energetics of E. Solvay does not need a detailed characterization because its essential traits, with the exception of Solvay's "positive politics," are reproduced in W. Ostwald's work. It is enough to say that, according to Solvay, "social phenomena are nothing but a combination of three factors: organic, psychic and inorganic, the last of which plays an especially important and primary rôle." Life is nothing but the phenomena of the transformation of energy. Consequently, social life is also nothing but "energetic phenomena." For these reasons the general laws of energetic mechanics are applicable to social phenomena. Sociology is social physics or social energetics. The primary task of sociology is "to reduce the totality of biological and social phenomena to fundamental physico-chemical actions and reactions."⁴⁰ Accordingly man and society are viewed as "energetic apparatuses", man's life and society's history, as processes of the transformation of energy, subject to the laws of energetic mechanics, and especially to the laws of the least effort and realization of maximum energy. Production, consumption, distribution and a series of other phenomena are interpreted in the same way. All this culminates in his "Scientific Positive Politics of Energetics," in which many liberal programs of social and political reconstruction are suggested.

According to W. Ostwald (1853-), "energetics can give to social sciences (*Kulturwissenschaften*) several fundamental principles, but it cannot give all the principles needed by social sciences."⁴¹ Pursuant to this thesis, Ostwald offers his energetic interpretation of social phenomena. It may be summed up as follows:

1. Any event, or any social or historical change in the last

⁴⁰ SOLVAY, É., 'Formules d'introduction à l'énergetique physio et psychosociologique,' pp. 53 ff., 213 ff., in *Questions d'énergetique sociale*, Institut Solvay, Bruxelles. See there *passim*. A systematic analysis of Solvay's 'social' energetics is given by the Director of the Sociological Institut of Solvay, G. Barnich, in his '*Essai de politique positive basée sur l'énergetique social de Solvay*' Bruxelles, 1919, *passim* and pp. 1-186.

⁴¹ OSTWALD, W., *Energetische Grundlagen der Kulturwissenschaften*, Vorwort, Leipzig, 1909. See also OSTWALD, W., *Die Energien*, Leipzig, 1908.

analysis is nothing but a transformation of energy (Lectures 1 and 2)

2 From the energetistic point of view the creation of culture is nothing but a transformation of crude (*rohe*) energy into useful energy (*Nutzenergy*) The greater the coefficient of useful energy obtained in such a transformation, the greater is the progress of culture A primitive lamp, for example, which transforms chemical energy into light energy, gives only about three per cent of useful energy, while a more perfect lamp gives fifteen or more per cent For this reason, we may say that the substitution of this better lamp for the less perfect is progress (Lecture 2)

3 Man is an apparatus for the transformation of all other forms of energy

4 Adaptation is nothing but the best possible utilization of crude energy and its transformation into useful energy The higher the percentage of useful energy obtained in this way, the better is the adaptation (Lectures 5 7)

5 Society, as a totality of individuals working together for a common purpose, is an arrangement for the better utilization and more perfect transformation of crude into useful energy Where there is no order and no regulation of mutual relations, but a disorderly struggle, there is a useless waste of energy and its perfect transformation is impossible Through its order society makes possible the better transformation of energy Only in so far as society serves this purpose is its existence justified When, instead, it hinders rather than helps in obtaining this result it loses the very purpose of its existence (Lecture 8)

6 The functions of language, law, commerce, trade, production, punishment, state, government and other cultural phenomena can be expressed in the same terms They all facilitate a better utilization of crude energy and prevent its useless waste In the primitive stages of culture this purpose was achieved imperfectly, since the methods of its achievement were rude The principal means of maintaining order were violence and coercion which led to an enormous waste of energy However, with the progress of culture the methods of social control became less expensive (Lectures 9 11)

7 The value and justification of any state consists in a better and better utilization of energy for the benefit of all its members and only in so far as this purpose is served by a state is its existence justified (Lecture 12)

8 Wealth and money are but concentrated forms of useful energy Their accumulation serves the same purpose The justification of private property consists in its facilitation of this purpose When it ceases to do that it loses its reason for existence (Lecture 13)

9 Science is the most fundamental means of the utilization of energy For this reason it is the basis of civilization the best blood and the deepest root of any culture Great inventors and scientists are to be appreciated because they serve this purpose Hence the great value of education of schools and of all institutions for the accumulation enrichment and diffusion of science Hence also the necessity for conditions like freedom of thought and investigation without which this purpose could not be served successfully (Lecture 14)

Such are the skeleton and principal considerations of W Ostwald's *energetistic interpretation of social phenomena*

Similar is the interpretation of civilization and social processes given by T N Carver in his interesting book about human energy⁴² The life of an individual and the history of a group are viewed by him as a transformation of the largest possible sum of solar energy into human energy The social process is a transformation of energy and its redistribution civilization is nothing but an accumulation of this transformed energy and progress its better and better utilization Especial attention is given by this author to an energetistic interpretation of economic phenomena Here he does not limit his task to a mere statement of general principles but attempts to develop a detailed sometimes even quantitative analysis of basic economic phenomena from the above point of view The book in general is

⁴² CARVER T N *The Economy of Human Energy* 1924 To this school belongs further N L Sims *Society and its Surplus* N Y 1924 In the preface and at the beginning of the book Professor Sims very emphatically sets forth an energetistic point of view In his analysis of various social phenomena he fails however to carry on his energetistic *dissiderata* and gives a long survey of social evolution and social processes in which the energetistic point of view is very little in evidence

better than many of the works mentioned above, and some of Carver's theories are really valuable

Let us next briefly outline L. Winiarsky's "mechanistic and energetistic interpretations" ⁴³

1 For Winiarsky, "a social aggregate is nothing but a system of points, i.e., individuals, who are in a perpetual movement of approaching or withdrawing from one another"

2 "The primary cause of these movements is attraction"

3 Like chemical affinity this attraction is elective and proceeds along certain lines and in a certain direction, namely, toward a maximum of pleasure and a minimum of resistance. The phenomena of social attraction, or social interaction, have accordingly a purely mechanical basis, though this mechanical attraction has a more complex character among human beings than among inorganic things, and is overgrown, so to speak, by psychical phenomena. Our choice of friends and enemies is an example of this principle

4 Nevertheless psychical phenomena themselves are nothing but a modification of biological energy, which, in turn, is a form of physico-chemical energy. For this reason, our choice itself is subjected to the above laws of mechanics, as is shown by pure political economy ⁴⁴. The attraction between male and female is another instance of the same principle. As the basis of this attraction is the "gravitation" or "chemical affinity" of the spermatozoa and the ovum. It manifests itself in the reciprocal desires of the young man and the girl, which they themselves do

⁴³ See WINIARSKY, L., 'La Méthode mathématique dans la sociologie et dans l'économie,' *La revue socialiste*, 1894 Vol XX, pp 716-730 'Essai d'une nouvelle interprétation de phénomènes sociologiques,' *ibid*, Vol XXIV, 1896, pp 430-454 'L'équilibre sociale,' *Rivista Italiana di sociologia*, Sept., 1899, "Deux théories d'équilibre économique" *Revue internationale de sociologie* 1896, pp 904-930 'Essai sur le mécanisme sociale,' *Revue philosophique*, Vol XLV, 1898, pp 351-386 'L'équilibre esthétique,' *ibid* Vol XLVII, 1899, pp 569-605 "L'énergie sociale et ses mensurations" *ibid*, Vol XLIX 1900, pp 113-134, 256-287. The last three articles are the most important. About Winiarsky see GROPPALI A., 'Essai récent de sociologie pure,' *Revue intern sociologie*, 1900, pp 425-442 487-519 SQUILLACE, *op cit*, pp 107-119 TRISCA, PETRE, *op cit*, Vol II. Like his predecessors, Winiarsky names Herbert, Weber and Fechner, Delboeuf, Edgeworth Gossen, Walras, Jevons, Pareto, as having tried to apply mathematical method to the study of psychical and economic phenomena. As indicated in our previous discussion, this list of Winiarsky's predecessors might well have been lengthened by the addition of several dozen names at least.

⁴⁴ *L'énergie sociale*, pp 113-115

not always recognize as arising from this deeper drive. It is subject to the same law of maximum pleasure. When this attraction, which is really sexual, is not satisfied, then, according to the law of the transformation of energy, it is sublimated into other psychical phenomena, such as coquetry, ornamentation, and other means of sexual attraction, which in turn give rise to æsthetic phenomena, the fine arts, and poetry⁴⁵. The same is true of other basic forms of gravitation or attraction such as food attraction. In this way the psychical phenomena are interpreted as a form of biological energy which in its turn is nothing but a form of physico-chemical energy. Thus "psychical and physical phenomena are reduced to the same laws of mechanics"⁴⁶.

5 Energy has various forms and may be transformed from one to another as, for example from potential to kinetic and *vice versa*. Life is a specific form of physico-chemical energy. Organisms generally, and the human organism especially are an embodiment of energy and mechanisms for its transformation.

6 The transformation of energy by an organism proceeds through the processes of alimentation and reproduction. In the field of vital phenomena the general law of mechanical attraction manifests itself in the form of the sex and food attractions. Love and hunger are, so to speak primary drives of organisms generally, and of human beings particularly determining their mutual attraction and repulsion. Human beings seek first of all, the satisfaction of these needs. It is under the influence of these needs that they enter into contacts of various kinds with one another. This basic fact accounts for the origin of all the various social phenomena, and for all the more complex forms of the transformation of energy by social groups⁴⁷.

7 "As a bullet when it encounters an obstacle, transforms its energy of motion into an inner energy of heat, light or electricity, so the crude movement of human masses that is driven by sex and hunger, when it encounters an obstacle in the natural environment or other groups which prevents the direct satisfaction of those needs, likewise transmutes the energy of hunger

⁴⁵ *L'équilibre esthétique*, pp. 569-573.

⁴⁶ *L'énergie sociale*, pp. 114-116.

⁴⁷ *Essai sur la mécanique sociale*, pp. 351-386.

and sex into economic, political, juridical, moral, æsthetic, religious or intellectual form. In this way vital energy is transformed into psychical and social"⁴⁸ This theory of how the energy of hunger and love originated and how they are transformed into complex psycho social phenomena, Winiarsky, furthermore, developed in great detail.

8 These processes of the transformation of energy proceed, moreover, according to the basic laws of thermodynamics. First the amount of energy in all these transformations remains constant. Second, the same laws of thermodynamics explain this social phenomena of change, differentiation, equalization, domination and historical progression generally. If the intensity of thermal energy in two physical systems is not equal there results transference of energy from one system to another and the greater the difference the more intensive is the process. This radiation of energy always proceeds from the system with a greater intensity to that with a lower intensity of thermal energy. In this sense the process of radiation is non-reversible. On the other hand, as radiation proceeds, the difference in the energy-intensity of the two systems becomes less and less until both systems become equal. This is the reversible aspect of the thermodynamic processes. Thus they take place only when there is inequality of energy, but proceeding tend to equality or entropy. Now the same basic laws operate in the field of psycho-social phenomena also, according to Winiarsky. The unequal amount and intensity of energy with which different individuals and groups are charged, account for all social and historical events. These are nothing but manifestations of the radiation of energy from individual to individual and from group to group. If energy had been equal in all individuals the whole drama of human history would not have taken place. Instead there would forever have been dead equilibrium. Only where there exists an inequality of force intensity there is motion, change, life, or history.⁴⁹ Similarly, unequal distribution of energy among indi-

* *L'énergie sociale*, p. 120. From this and from the article *L'équilibre esthétique*, one has to conclude that Winiarsky laid down the essentials of the Freudian theory considerably earlier than it was done by Freud.

⁴⁹ This idea was developed by K. Leontieff much earlier than by Winiarsky. It constituted the basic principle in Leontieff's criticism of the equalitarian and

viduals and groups is responsible for all such social phenomena as inequality differentiation, stratification domination and the like

As in thermodynamics the process of thermal energy equalization proceeds from the body with the higher temperature to that with the lower so the individuals or social groups with the greater psycho social energy radiate their energy to the individuals or groups with less From which it follows that all phenomena of social differentiation such as inequality exploitation domination class distinction and caste stratification are but manifestations of the general phenomena of energy radiation from systems of higher to those of lower energy But as in physics the transference of heat leads to its gradual equalization in all the bodies concerned so in the social process the corresponding transference leads to the rise and growth of social equality Such is the explanation of the progress of liberty and the disappearance of monopoly and other privilege in all fields of social phenomena The greater the inequality the more intensive will be this process of equalization Liberal socialist communist and equalitarian

socialistic movements The upward evolution of an organism or of a society always displays the phenomena of differentiation Its disintegration on the other hand always displays a fusion of what before was separate and different This fusion leads to a weakened cohesion of the organisms or society's parts which results at last in its destruction Hence Leontieff's three periods in the life-cycle of any society the initial period of simplicity then a period of blooming complexity and differentiation and finally a period of equalitarian disintegration and decay In the history of modern Europe the first of these periods lasted until about the ninth century when society was still simple The second period corresponds to the climax of European civilization between the ninth and the seventeenth centuries But since the eighteenth century Europe has entered upon a period of fusion and equalization Its greatness lasted only a thousand years The fact that in the nineteenth century it is setting up equality as an ideal means only that it is exhausted and is tending again toward an undifferentiated simplicity But before it can reach that it is doomed to fall apart and give place to other societies All that is really great fine and durable has been created not indeed by universal liberty and equality but instead by differences in rights social positions and educational opportunities—but in a society united under a supreme and sacred authority The equalitarian movement betrays a tendency toward the simplicity of a corpse and the equilibrium of death However Leontieff was not the first to set forth this theory for similar ideas had already been expounded by Danilevsky as early in the century as 1869 Thus were O Spengler's theories anticipated by half a century Indeed in all its essential characteristics Spengler's work is a mere repetition of the social speculations of Leontieff and Danilevsky See LEONTIEFF *K. Byzantinism and Slaves* Russ. 1873 DANILEVSKY *Russia and Europe* 1869 2nd ed. 1871 See also BERNIAJEFF *Philosophy of Inequality* Russ. 1923

movements are all forms of this basic law of social thermodynamics "Even in a primitive group, order, power, law and social control spontaneously appear, simply because the energy arising from its inequalities passes in the form of domination from a higher to a lower point, but never inversely Since the radiation of energy proceeds in this way, there is a tendency toward the equalization of differing intensities, and this goes on until an equilibrium is reached in which there are no such differences, whereupon, according to the laws of thermodynamics, all transformation stops" ⁵⁰

9 From this, Winarsky logically concludes that, in the future, the state of social entropy,—a dead and immovable equilibrium—will come in some way into the history of mankind, as it has in the history of the whole universe Equalization of individuals, classes, castes, races, and so on, proceeds now with a great intensity We are already at the beginning of the long process of social entropy, which is conspicuously manifested by the influence of socialistic and equalitarian movements (*Ibid*, pp 129 133)

10 From the above he infers that the object of social science is to study this energetistic system of men and objects, subjected to the laws of mechanics in their activities and relationship In order that this study may be really scientific, it has to be not alone qualitative, but also quantitative Corresponding phenomena must be measured To be able to do so, social science must have a unit of measurement, such as money, which is the measure for economic energy Therefore, money (or price units) may serve as a unit for the measurement of all the social transformations of energy The reasons are as follows

"Biological energy is the central motor of social phenomena Passing through a series of transformations in the forms of political, juridical, moral, æsthetical, intellectual, and religious phenomena, it eventually arrives at economic energy, which, being measured through money (gold), serves for the measurement of biological energy itself Economic energy plays there the same rôle as heat energy in mechanics" Comparing the social utility (which is a general form of bio-social energy) of a material, or its immaterial value, with the social utility of gold, we may obtain

⁵⁰ *L'énergie sociale*, pp 124-127

an index of the intensity and the amount of energy in the social object, comparing it with the indices of other objects expressed in the same gold value we may obtain some of the approximate quantitative data necessary for the creation of quantitative social mechanics. 'Gold is a general social equivalent an incarnation and personification of bio social energy. At the same time it is a general transformer the greater part of material and immaterial values may be produced through corresponding money expenditures. This furnishes the possibility of making them measurable in units of the same money. It is up to the future energetics to realize these quantitative social mechanics'⁵¹

Such is the essence of Winiarsky's theory of social energetics or mechanics. The above gives an idea of the principal varieties of the contemporary schools of social physics and social energetics or mechanics.⁵² Postponing for a moment an analysis of

⁵¹ *L'energie sociale* pp. 262-287.

⁵² The theories which refute any psychological interpretation of social phenomena and any use of subjective terms and which use such terms as social pressure or pressures of social groups or energies of social activity and so on, remain undiscussed. According to their intentions they show also an inclination to a mechanistic or energetistic interpretation of social facts but in their realization of this intention they usually fail to carry it on. *The Process of Government and Relativity in Man and Society* by Arthur F. Bentley may serve as conspicuous examples of the works of this kind. Being rather justified in his criticism of various psychological explanations of social phenomena, A. Bentley (see his *The Process of Government* 1908 pp. 7-8, 17, 18, 35, 37, 50 and *ibidem* and *passim*) in his constructive plan fails to carry on his objectivism and physicism into his interpretation of social phenomena. He finally reduces his pressures to the interests and in this way reintroduces into sociological interpretation the same psychical and subjective factors which he had so vigorously attacked in the first part of his work. The same is true in regard to his new work *Relativity in Man and Society* 1926. Besides not making a quite successful application of the mathematical theory of relativity to social science, Bentley's reforming of sociology in this book is purely terminological rather than factual. For any serious partisan of objectivism in sociology it is impossible to accept Ratzenhofer's interests or Simmel's forms or Durkheim's social mind and collective representations as basic explanatory principles of an objective social science. It is evident that these principles are purely subjective and are of the same nature as H. Spencer's affections and A. Small's interests which are so strongly criticized by Bentley himself. In spite of this as though forgetting his own criticism Bentley strongly praises these theories in his new book and by this he once more shows that his objectivism is purely terminological. With still greater reason this may be said of several other theories which criticize psychologism and subjectivism in sociology pleading for an objective sociology and abundantly using expressions like social pressure. The majority of them however are subjective speculative and psychological through and through. Their social pressures remain undefined even to the authors themselves. As soon as they start to

V Pareto's works, which deserve much greater attention, let us briefly discuss the scientific value of the above theories

5 CRITICISM

There is no doubt that the plans of either social physics, social energetics, or of social mechanics, such as are laid down by the above authors, are tempting. Indeed, what may be more magnificent than a social mechanics which, by a series of mathematical formulas, unveils all the mysteries of the most mysterious drama of human history! What may be more scientific than a discipline which successfully shows that all complex phenomena of human behavior, of social relationship, and of social processes, are but a mere variety of physical phenomena subjected to the same laws and accurately described by them! What may be more fascinating and more tempting than such a theory! And yet, when we take the above theories and soberly try to analyze their contributions, we are greatly disappointed. Frankly, I think that all the above theories have contributed but little to the scientific understanding of social phenomena. I believe that they give only a series of superficial analogies, and that when they attempt to reduce social phenomena to the physical, they disfigure and misinterpret not only the social phenomena, but the laws of physics, mechanics, energetics, and logic as well. I am aware of the severity of this criticism, and yet it appears to me quite justified. My reasons are as follows:

A. In the first place, *the theories transgress the basic logical law of the necessity for adequacy in a logical subject and a logical predicate in a logical judgment*. If I say, "A human being is an animal with two eyes," my judgment is in some respects true, because human beings have two eyes, but from the standpoint of logical adequacy it is quite wrong, because not only human beings, but many other animals, have two eyes also. The logical

"interpret something," the subjectivism' and "psychologism, which they pitilessly banished before, are at once reintroduced under slightly changed names, such as psycho-social environment, psycho-social factors, and so on. As a result, such works do not have the positive qualities of either a purely psychological interpretation or even of purely objective, mechanistic, or behavioristic interpretations while they do have the shortcomings of both. Their intention to build an objective sociology remains in fact a mere '*pra desideria*'

predicate, "animal with two eyes," is referred here to the class "human being," which is much narrower than the class of animals which really has two eyes. Hence, the logical inadequacy of the judgment. If, on the other hand, I say, "A human being is an animal which shaves his whiskers," my judgment will be again inadequate, because there are human beings who do not have whiskers (females) and who do not shave them. Here the logical predicate is referred to a logical subject which is in fact much broader than is indicated in the judgment. These examples show two kinds of logical inadequacy in judgments: one, where the logical predicate is referred to a logical subject which, in fact, is much narrower, and another, where it is really a much broader class than the classes (logical subjects) to which the predicate's characteristic are attached in the judgments. All such judgments are *unscientific* and the most common shortcomings of various hypotheses and theories consist in just these two kinds of inadequacies, all the improved and more scientific generalizations have consisted merely in the substitution of a more adequate for a less adequate logical statement. Copernicus' theory is better than Ptolemy's because it is more adequate. Newton's laws of mechanics are better than those of Kepler for the same reason.

Not all concepts and theories which may be unrepachable from some standpoint have a real scientific value. For instance about such classes of phenomena as "ten-cent cigars" or "dogs with long tails and short necks," it would be possible to make so many 'true statements' that their exposition would fill many volumes. About "ten-cent cigars" it would be possible to state that they are subjected to the law of gravitation, that they fall down according to such and such laws of mechanics, that their size may enlarge according to such and such laws of physics and so on. Furthermore, it would be possible to make a series of "true statements" concerning their chemical composition. Additional volumes of our imaginary science on "ten-cent cigars" could be filled by truths of a biological and botanical character. Similar voluminous "sciences" could be created about 'dogs with long tails and short necks,' about 'pewter soldiers,' and so on and so forth. But such "sciences" would be nothing but a mockery of, or a parody of a real science.

These are conspicuous examples of how scientific theories ought not to be made, rightly says Petrajitzky.⁵³

Their unscientific character consists in their logical inadequacy, in that their statements (logical predicates) are referred to the inappropriate,—in this case to classes of logical subjects which are too narrow,—while these statements (logical predicates) ought, in fact, to be referred to much broader classes of logical subjects. For example, the statements of inertia, gravitation, and so on in our pseudo-science, are made only about cigars, specifically, "ten-cent cigars", while they in fact ought to be applied to all material objects, that is, to an incomparably broader class of phenomena. Such pseudo-scientific theories are only misleading, because they create the supposition that the characteristics given to a class of objects represent only their specific traits,—something which belongs only to them, and to nothing else.⁵⁴

As there is no limit to the creation of such classes, and as the capacity of the human memory is limited, an abundance of such theories and "sciences" would become a greater burden for us than their absence.⁵⁵

The same, with a corresponding modification, may be said of the theories in which the logical predicate (the characteristics) is ascribed to a much larger class of phenomena than that to which it really belongs. Such are, for instance, the judgments "All organisms have two hands," "All human beings are Roman Catholics," "All Americans are blonds," "All professors are geniuses," "All monarchs are cruel," and so on.

The above makes clear what I mean by the "logical inadequacy" of a judgment or theory. Now it is easy to see why the above energetistic or mechanistic theories are inadequate. In the first place, they are a variation of the above pseudo-scientific theory of "ten cent cigars." The laws of physical mechanics do not say

⁵³ See a brilliant analysis of this principle of the logical adequacy of the logical subject and predicate in PETRAJITZKY, L., *Introduction to the Theory of Law and Morals*, (Russ., *Vvedenie v teoriiu prava i npravstvennosti*), St. Petersburg, 1907, *passim*. See also TSCHUPROFF, A. A., *Essays in the Theory of Statistics*, (Russ., *Očerki po teorii statistiki*), St. Petersburg, 1909, *passim*.

⁵⁴ PETRAJITZKY, L., *op. cit.*, pp. 72-77 *passim*.

⁵⁵ TSCHUPROFF, A., *op. cit.*, pp. 1-20, and *passim*.

that they are applied to all material bodies with the exception of human bodies. They are applied to human bodies and to all other social things of a physical character also. Therefore there is no reason to insist on, and to create, a special theory of "social gravitation," or "social inertia," or a "law of social entropy," or any special law of physical mechanics. The 'mechanists' try to break with violence into a room whose doors are open. The laws of physics, mechanics, and chemistry are applied to all social objects of a physical character, and there is no reason to make a noise about creating a "human physics," a "human gravitation" or a "human chemistry." Such attempts are nothing but efforts to create a "physics, chemistry, and mechanics of dogs with long tails and short necks." In this respect the theories discussed are inadequate, and therefore defective.

But one form of inadequacy in a theory is usually followed by another form, and this we see in the mechanistic theories. Trying to interpret man and social phenomena in the light of the principles of mechanics or general energetics, they disregard a series of the specific characteristics of social phenomena, which belong only to the human world and which do not belong to other physical, chemical, or energetic phenomena. As a result of the school's "equalization" of social and physical phenomena, the theories ascribe to physical phenomena a series of human characteristics (anthropomorphism), and take off from social phenomena a series of their specific traits. Because of this, the laws of mechanics are disfigured, their "nature" is made 'anthropomorphic' and the essentials of social phenomena are passed over, without even touching them.

It may be true that social instinct is nothing but a variety of physical gravitation, yet, can we say that each phenomenon of gravitation, for instance of the earth and the moon, is a "social instinct"? It may be true, as Voronoff says, that the "social phenomena of association and coöperation are nothing but those of the addition and multiplication of forces", but does this mean that each case of addition and multiplication of forces studied by mechanics is a social phenomenon of coöperation and association? Evidently not. If not, then what is the difference between social coöperation and association, and between other

cases of addition and multiplication of forces studied by mechanics? We do not find any answer to the question in the above theories. It may be true that war and social struggle are the phenomena of "subtraction of forces," but does this mean that each case of subtraction of forces studied by mechanics is war and social struggle? If the phenomena of law are those of "co relation and coördination of forces" then what is the difference between this "coordination of forces" and the coordination of forces A and B which are at the ends of a lever? In spite of the fact that the second case is also "coordination of forces" it is by no means a phenomenon of law. We are told by the energetists that the dissipation of heat through radiation, and the phenomenon of crime are both phenomena of wasted energy. Does this, however, mean that all dissipation of heat and every waste of energy is "crime"? W. Ostwald may be right in saying that language, law, commerce, state, culture, government and other social phenomena are nothing but transformations of a rude energy into a useful one. Does this, however, signify that each case of such a transformation, studied by physical mechanics, composes the phenomena of language, law, government, and so on? Evidently not. If not, what is the difference between the transformation of the energy of sun heat, or in that of the mechanical motion of wind and in these cases of cultural phenomena? It may be that wealth and money are nothing but concentrated useful energy. Does it follow from this that any concentrated energy (for instance, the energy of a volcano) is money and wealth?

The above shows the other side of the logical inadequacy of the criticised theories. They study social phenomena only as purely physical manifestations. All that is specific in social facts, and all that differentiates them from an inorganic substance, is factually excluded from the study. Human beings are simply transformed into a mere physical mass, facts of social life, human conduct, heroism, crime, love, hatred, struggle, coöperation, organization, ethics, religion, arts, literature, and so on,—all these are transformed into a mere "physical mass," and a study is made of its transformation and its "motion." In this way all that is specific in social phenomena is lost, being passed over and left

without any analysis. This means that social physics and energetics are useless, because they do not study social phenomena as something specifically different from "physical mass" and "its motion". They are useless also because human beings, as a physical mass, are studied by physics, chemistry and mechanics, and there is no reason for the existence of a social physics and mechanics which would do the same.

This conclusion would remain valid even if it could be shown that human beings and their interrelations are a mere combination of electrons. Even in this case, the "human" combination of electrons would remain a specific combination, differing from any combination in an inorganic or organic body, and necessitating a separate study.⁵⁶ Thus the monism of the discussed theories leads to a double fallacy: it disregards all the specific characteristics in social phenomena, and, at the same time, ascribes to general physical phenomena some of the characteristics which do not belong to them, but rather, only to the kingdom of man and social phenomena. This is the fundamental shortcoming of these theories.

B. The above is well corroborated by the factual generalizations given by social physicists, mechanists, and energetists. Take, for instance, Carey's law of social gravitation. At first glance it appears to be something valuable, but merely a superficial analysis would show its complete fallacy at once. The factual study of the growth and decay of cities does not corroborate the statements. Cities do not "attract" the human molecules in direct ratio to the mass or in the inverse ratio of the distance. Any statistician who would predict the rate of growth (or of decrease in the size) of a city on the basis of this law, would be doomed to failure. The law does not at all explain why some places, uninhabited before, become the abode of a rapidly growing city, at one period, nor why this city stops growing and declines at another period. In brief, the law is rather useless for an explanation of the real facts of the concentration and dispersion of population. It is evident also that Carey's other "identifications" of the physical and social laws do not amount to anything.

⁵⁶ See a detailed discussion of this in SOROKIN, *System of Sociology*, Vol. I, pp. 7-10.

beyond various analogies whose scientific value is nil. They do not, and cannot, explain anything in the real movement of social processes.

Bechtereff's "laws" are nothing but a caricature of scientific law, in which the meanings of the laws of physics and chemistry, as well as of social facts, are disfigured. The conclusion must be similar concerning the theories of Solvay, Ostwald, Haret, Barcelo, Winarsky, and others. So far as they only repeat the statements of physics, mechanics, and chemistry, they represent a useless and somewhat misleading duplication of the truths of these scientific disciplines. As far as they try to identify physical and mechanical laws with social ones, they give only fallacious analogies which do not, and cannot explain anything in the field of "social mechanics." To say that the "primary cause of the movement of individuals is attraction, is to say something which can either be proved or disproved. To say that the universal phenomenon of gravitation assumes the forms of food and sex attraction in the social field is meaningless or fallacious analogy. If the analogy were well founded, we would have to expect that sex and food attraction would be in the direct ratio of the mass, and in the inverse ratio of the distance (of food or sex). Obviously there is no reason for such an absurd statement, and the analogy is, therefore baseless. To identify an equalitarian movement (which is besides, depicted wrongly) with the phenomenon of entropy, or the phenomenon of social differentiation with that of thermodynamics signifies no more than a curious and useless analogy, an analogy which explains nothing in the phenomena of equalization or differentiation in their appearance and change. Let some one try to "explain" by means of this analogy either the origin and development of a caste regime, or the "democratic movement" in any country at any time. Such an investigator will see at once that Winarsky's thermodynamic principles do not work at all giving no help to the understanding of these processes and their development. Take any of the generalizations of the school and try to apply them in an explanation of any social phenomena. The results will be the same for they neither work nor explain anything. A number of the representatives of the school

insist on a quantitative study of social phenomena, but not one of them has produced a single quantitative formula, or given a *coefficient of correlation between two or more social processes*. It is true that they copied and put into their articles several formulas of physical mechanics, but alas, they themselves do not know how to apply them, nor how to use them in regard to social facts. Since no unit for the measurement of "social forces" has been found as yet, all these formulas are to be regarded as a mere exercise in the copying of mechanical formulas, nothing more. The fictitious character of all these formulas is shown by Winiarsky himself. After all his sweeping statements and formulas, when he comes to the problem of the measurement of social phenomena, all that he can offer is a statistical study and statistical comparison of various social phenomena, in spite of all his principles and formulas of social mechanics. This is a convincing manifestation of the inapplicability of these formulas and principles.

Finally let us take the behavior of individuals, A, B, C, D. Can we explain the immense variety of their actions through the principle of physical mechanics, through that of inertia, gravitation or by means of the principles of levers of the first and of the second orders, and so on? Do they help us to understand why A becomes a hermit, B marries, C dies on a battlefield, D writes a poem, and so on? Do these principles throw a light on the religious, political, æsthetical, and other social phenomena? Can they explain why the history of one people has developed in one way, and that of another in quite a different manner? It is sufficient merely to put these questions in order to see that we are still very far from being able to reduce social phenomena and their mechanics to the simple laws of physical mechanics. For this reason we should be modest in our desire to make such a reduction. We cannot set forth daring but utopian pretensions. Under the existing circumstances, such pretensions are rather comical and childish.⁵⁷

The above is sufficient to show the fallacies of the school. In spite of its tempting character, it has not produced anything really scientific, after the social physics of the seventeenth century. Only in an indirect way has it served social science, especially through

⁵⁷ SOROKIN, *ibid.*, p. 8

the social physics of the seventeenth century. This service has consisted in the school's insistence on the quantitative and causal study of the social facts, and in its premature, but suggestive pretensions to view the social processes "mechanically." This has influenced social science and facilitated quantitative and causal studies of social phenomena. Apart from this service, contemporary social mechanics, physics, and energetics do not amount to anything conspicuously valuable. Only a further and a great progress of social science may give a real basis for future social mechanics, but it will probably be radically different from the present "social mechanics" as a mere transfer of the conception and laws of physical mechanics into the field of social phenomena.

6 VILFREDO PARETO⁵⁸ AND OTHERS

PARETO'S CONCEPTION OF THE RELATIONSHIP OF A SPECIAL SCIENCE TO SOCIOLOGY

Earlier than Winiarsky and many other representatives of social mechanics, Pareto, following the works of Gossen, Walras, Jevons, Cournot, and Edgeworth, laid down his theory of a 'pure economics,' or other pure social science which corresponds to "rational mechanics" and of its relationship to sociology.

In rational mechanics, two kinds of motions are studied, the real and the virtual. The former are those which really take place, the second are those which are to follow under certain circumstances, indicated in a hypothesis, which will help us to understand the characteristics of the real motions. A study of the real movements would be almost exclusively descriptive, while a study of the virtual movements would be essentially theoretical. The former may be synthetic, the latter, analytic. The human intellect cannot fruitfully study various phenomena at the same time, we must consider them one after another. From this follows an absolute necessity for isolating, more or less arbitrarily, the various parts of a phenomenon and studying them separately in order that they may later be re united into one bunch to obtain a synthetic concept of a real phenomenon.

Pure political economy corresponds to rational mechanics.

Like it, pure political economy has to simplify the complex

⁵⁸ Born in Paris in 1848 of Italian parents. Died in 1923. Professor of Economics and Sociology at the University of Lausanne Switzerland. See Pareto's biography in PANTALEONI, M., *In occasione della morte di Pareto*, "Giornale degli Economisti" Nos. 1, 2, 1924.

reality and to take the simplest isolated conditions and the simplest *homo-oeconomicus* (the virtual economic phenomena) to make their analytical study possible. In such a study human beings must be regarded as mere hedonistic molecules as in rational mechanics the complex solid bodies are regarded as mere material points. When such a study is made there comes the synthetic stage in which all the analytical data of pure economics and of other pure sciences are to be united to explain the real and complex social phenomena. Though man always remains *homo-oeconomicus* he is in reality something much more complex than a hedonistic molecule. We must take into consideration his affections instincts prejudices and so on. In order to explain the real complex economic phenomena, we must take into consideration all the important factors which we disregard in our pure economics but which in reality exist and influence pure economic phenomena. The one science which uses the conclusions of pure economics and of other pure social sciences making a synthesis of their data, is sociology. Thus as pure economics begins to take more and more into consideration all the important human traits and proceeds its synthetic way it begins to turn more and more into sociology as the synthetic science of a real man and of real social phenomena.⁴⁹

The same is true in regard to any special pure science. This has been exactly the way in which Pareto from a pure economist became a sociologist. Like the methods of rational mechanics those of pure economics are essentially mathematical. Mathematical or functional also are the methods of synthetic social science, as the science which studies mutual dependence of various social phenomena. (See more about this point.) This gives an idea about Pareto's pure economics and of other pure social sciences and of their relation to sociology. These ideas were brilliantly realized by Pareto in his treatises on economics.⁵⁰

⁴⁹ PARETO V., "Il compito della sociologia fra le scienze sociali," *Rivista Italiana di sociologia* July 1897 "I problemi della sociologia," *ibid.*, 1899 "Un'applicazione di teorie sociologiche," *ibid.*, 1900 *Traité de sociologie générale* Vol. II, Paris, 1919 §§ 2009-2024.

⁵⁰ See PARETO V., *Cours d'économie politique*, 1896-97 Lausanne *Les systèmes socialistes* Paris, 1902-3 *Manuale di economia politica* Milano, 1906 and a long series of Pareto's articles published in the leading Italian, French, and Swiss economic and sociological journals.

They gave him a well deserved fame and the leadership in the field of mathematical economics, greatly influencing Winarsky and other partisans of the mechanistic school in sociology. In this way, Pareto became the originator of this school in contemporary sociology, so I shall discuss his theory in this chapter.

I do not mean to suggest by this, however, that Pareto's sociology is in any way similar to the primitive "social mechanics" criticized above. Pareto was too original and too serious a thinker to satisfy himself with the above somewhat childish "mechanical analogies." Proceeding from purely analytical economics to a more and more synthetic study of the real (complex) social phenomena, he remained a "mechanisticist" only as far as the 'mechanistic method' means according to K. Pearson, the most accurate and the shortest description of a studied phenomenon. In all other respects Pareto's sociology has very little in common with the above 'mechanistic theories.' A summary of Pareto's sociological conceptions is given in his two large volumes, *Trattato di sociologia generale*, which was published in Italian in 1915-16, (translated into French in 1917-19), and in his *Les systemes socialistes*, which two are the most important of all his sociological works. *Trattato* is not a textbook. It has nothing in common with the usual type of "The Principles," "The Foundations," and the "General Sociologies." Pareto's treatise is the product of an original and outstanding scientific mind. It has been said to be as original and important as Vico's and Machiavelli's treatises.⁶¹ If such an estimation may be accepted, the outstanding value of Pareto's works is beyond doubt. Beyond doubt also is Pareto's great influence on Italian and French economic and sociological thought, and also on political thought.

⁶¹ See R. Michels' quoted paper about Italian sociology and Pareto's works in *Kolner Vierteljahrshesfte fur Soziologie* July-August, 1924 the same in *Revue intern de Sociologie*, 1924 pp 518-530 BOUSQUET, G. H., 'V. Pareto,' *Revue intern de Sociologie*, 1924, pp 113-117 BOUSQUET *Grundriss der Soziologie* Pareto's, 1926 CARLI F., 'Paretos soziologisches System und der Behaviorismus,' *Kolner Vierteljahrshesfte fur Soziologie*, IV Jahrgang, 3 u 4 Heft GINO BORGATTA, *L'Opera sociologica e le feste giubilari di V. Pareto*, Torino, 1917 *Jubile du V. Pareto*, Lausanne 1920 (publ by the University of Lausanne, where Pareto was professor) a special number of *Giornale degli Economisti*, Nos. 1-2, 1924, dedicated to Pareto and composed of the papers of R. Michels, M. Pantaleoni, E. Barone G. del Vecchio R. Benini, E. Ciccotti, and of other prominent economists and sociologists.

and practice in Italy. As is known, the ideology of the Italian Fascism has taken a great deal from the theories of Pareto. The outstanding character of his theories is well witnessed also by those socialist and anti Fascist writers who have styled him the "Karl Marx of Bourgeoisie." So much about Pareto's general characteristics. Let us now turn to his *Trattato*. Like almost all writers about Pareto, I must give warning. His *Trattato* is so poorly written and the material is so carelessly arranged, that in a brief summary it is impossible to give any adequate idea of Pareto's work.⁶² It must be read and studied in the original. Even the best analysis will be only a shadow of the work itself.⁶³ All that I can do here is to give such a shadow of the leading ideas of Pareto's theory.

WHAT PARETO UNDERSTANDS BY SCIENTIFIC SOCIOLOGY

By scientific sociology Pareto means a "logico experimental science" based exclusively on the observation of and experimentation with, the facts. No reasoning, no speculation, no moralization, nothing which goes beyond the facts or does not describe their uniformities or qualities can compose an element or a theory of logico-experimental sociology. In other words, no *a priori* element or principle is to enter in or to be admitted to, sociology. The propositions and statements of such a sociology are nothing but a description of the facts and their uniformities. As such, they never are absolute but relative, being subject to change as soon as new facts show their inaccuracy. The categories of "necessity," "inevitability," "absolute truth," or "absolute determinism," and so on are out of such a science. Its propositions are only more or less probable, being based on the principle of,

⁶² Bousquet rightly says: '*Trattato est aussi mal redigé que possible. L'abondance des preuves expérimentales nuit à la clarté de démonstration: les sujets sont abordés sans aucun esprit de suite, et le lecteur ne comprend pas où il va.*' *Op. cit.*, p. 116. Comp. BARONE E., *Giornale d'Economisti*, 1924 p. 22. There is a short compendium of Pareto's Treatise by Farina, but even it does not give an adequate idea of Pareto's work.

⁶³ In this respect Pareto's work reminds one of the works of another outstanding sociologist and economist, Max Weber. In spite of quite different starting points and terminology, the methodological conclusions of both authors (in the field of sociology) are very similar. Since the most important sociological work of M. Weber concerns the problem of religion, it will be more convenient to discuss his sociology in the chapters on the sociology of religion.

and being measured according to, the theory of probability. Nothing that is beyond observation or experimentation may become the object of such a science. About such problems, logico-experimental sociology can say nothing. No entity, no absolute principle, no absolute value, no moral evaluation—nothing that lies beyond observation and experimental verification may become a component of a “logico experimental sociology.”

Up to this time, almost all sociological theories have not been such logico experimental propositions. To this or that degree they have always been dogmatic, metaphysical, non logico-experimental, absolute and “moralizing.” They usually trespass the boundaries of facts, observation, experimentation, and even of logic. From this standpoint, August Comte’s or Herbert Spencer’s “sociologies” are almost as unscientific as those theological and religious theories which they criticize. Under other names, these and other sociologies, have introduced into their theories the same “superfactual and super-experimental entities” (moral evaluation, dogmatism, “religion of Progress and Evolution,” religion of “Positivism,” and so on) which are nothing but the super-observational and superfactual “entities” and “absolutes” of the criticized religious doctrines, only slightly changed verbally. Sociological theories of the “Religion of Mankind,” the “Religion of Solidarity,” or of “Democracy”, the concepts of “Progress,” “Socialism,” “Evolution,” “Brotherhood,” “Liberty,” “Justice,” “Equality,” and so on, theories which preach what ought to be and what ought not to be, theories which evaluate what is good and what is bad, and various “laws” of evolution and development,—all such theories and propositions, so abundantly scattered throughout contemporary social and sociological thought, are as unscientific as any “theology,” because they are nothing but a modification of it. Like it, they are not based on facts or observation nor do they describe the characteristics and uniformities of the facts, but dogmatically command what ought to be, or postulate some entities which lie beyond observation and experimentation.⁶⁴

Such, in brief, is Pareto’s conception of the logico-experimental science of sociology. It is easy to see that this conception of

⁶⁴ See PARETO, V, *Tratte de sociologie generale*, Vol. I, pp. 1-64, Paris, 1917

science is similar to that of A. Cournot, E. Mach, R. Avenarius, H. Poincaré, A. Rey, P. Duhem, K. Pearson, A. Tschuproff, F. Enriques partly to that of H. Vaihinger, and M. Weber⁶⁵ and to that of some other prominent representatives and theorizers of contemporary science. This does not mean that Pareto denies any usefulness in the non logico-experimental theories and beliefs but on the contrary he more than anybody else insists on the fact that the non scientific (or the non logico experimental theories) are very often useful and necessary for the existence of a society while the logico-experimental theories may often be socially harmful. In this way Pareto separates the categories of Truth and Usefulness. If nevertheless he pitilessly expels all the non logico-experimental propositions from the field of science he does it only to avoid a mixture of science with other forms of social thought.

QUANTITATIVE DESCRIPTION OF THE FUNCTIONAL INTERDEPENDENCE OF SOCIAL PHENOMENA INSTEAD OF ONE SIDED CAUSATION

The next important part of Pareto's methodology is his criticism of the concept of one sided causation in its application to the study of social phenomena. The concept of a cause and effect supposes a relationship of one sided dependence between two or more phenomena. Factually such a relationship is almost never given in the relationship of various social phenomena. As a rule they are mutually dependent. If for instance the qualities of the members of a society influence its social organization the latter also influences the former. For this reason the conception of a one sided relationship of a cause and effect could not be applied to a scientific study of social phenomena. When it is applied it shows the fallacy of either a simplistic theory or of a cinematographic one. By the fallacy of a simplistic theory I mean the following. Let us take a society. Its character and equilibrium are composed of and are dependent on geo-

⁶⁵ From a quite different standpoint Max Weber also comes to the conclusion that sociological regularities are nothing but *Erwartungschancen* or typical probability-expectations. See WEBER, M. *Wirtschaft und Gesellschaft. Grundriss der Sozialökonomik* III, 1921-22, p. 14. *Gesammelte Aufsätze zur Wissenschaftslehre* 1922, pp. 420-444 ff.

graphical environment, (A) economic situation, (B) political constitution, (C) religion, (D) ethics and knowledge, (E) and so on. All these variables mutually depend on, and mutually influence, one another. Through this interaction they permanently change the character of a society and its equilibrium. We have then a mutual dependence of these "variables," and a dynamic equilibrium of a society, which may pass permanently from one state

A, B, C, D, E .
 A', B', C', D', E'
 A'', B'', C'', D'', E''

to another

and so on
 A C D E A (K₂)

Now a "simplicist" theorizer takes an element A, as a cause, and tries to view B, C, D and E, as its "effects" ⁶⁶ Some other simplicists may take B, or C, or D, as a "cause" and try to view the other elements as effects. In this way we receive, and we indeed have, plenty of various contradictory theories which all represent a simplicist type of sociological theory, (all of them being one sided theories which try to explain the whole social life through a geographic, racial, economic, political, or any other factor). As a result of such a procedure, the theory is inevitably one sided, its generalizations, inadequate, its diagnoses, false, and its formulas, fallacious, to say nothing of the useless fights between various simplicist theories which are caused.

The following is meant by the fallacy of a "cinematographic" theory. The sociologists observe and describe the transition of A into A', A'' and so on, the transition of B into B', B'' ; and of C into C', C'' just as we are shown picture after picture in a motion picture drama. This transition is described by these cinematographic theories under the name of evolution. By this description they limit their task, and think that every-

⁶⁶ For instance, F. de Coulanges says, "the domestic religion taught man to appropriate land and guaranteed his rights of property." Pareto shows how fallacious is this statement, and how the concept of a cause (instead of a mutual dependence) is responsible for the fallacy. PARETO, *ibid.*, Vol. I, pp. 254-255. In the same way he gives a series of similar "causal theories" of August Comte, Herbert Spencer, H. S. Maine, Duruy, I. S. Mill, and so on, and convincingly shows their fallacious character due to the same reason. *Ibid.*, §§ 256 ff. For the same reason he is right in saying that the majority of various anthropological and ethnographic "explanations" are defective.

thing in the way of a scientific study is completed. The fallacy of such theories, even when their schemes of an "evolution" are accurate (which is rare) is in their superficiality. They do not, and cannot, give any generalization beyond a purely empirical, "historical description." They cannot supply us with "formulas of uniformities," and do not give any analysis of the phenomena.⁶⁷

In order to avoid either of these fallacies, sociology has to deal with the concept of a functional relationship between social phenomena instead of a one sided causal relationship. Conceptions of "cause" and "effect" must be superseded by those of a "variable" and "function." In a purely methodological way it is necessary in the beginning to isolate a definite "variable" which is always present as a component of social phenomena and then to study its "functional relationship" to the other phenomena B, C, D, E. The same must be done in regard to the "other variables" B, C, D, E. When this stage is finished, a series of the obtained "formulas" of functional correlation should be introduced for the study of the complex series of interdependent social phenomena, A, B, C, D.⁶⁸ In this synthetic stage of the study, our primary attention should be given to those social relationships which are relatively constant. We must observe their fluctuations in time and space and the interdependence and correlation of these oscillations. We must grasp the repeated uniformities in their complex variation and change, describing them qualitatively, and measuring them quantitatively. All that is unique, or quite irregular, non repeated, or "incidental," we must leave, at least for a time, until we have at our disposal the formulas for the series of the most important "uniformities" and their quantitative indices. *De minimis non curat praetor*. In this way we will obtain a series of "successive approximations to the complex reality. Contrary to those of the simplicist theorists, these 'successive approximations' will be about accurate.⁶⁹ They will also differ from those of the cinematographic theories,

⁶⁷ PARETO *ibid.*, § 2023. Comp. BARONE, E., 'L'opera di V. Pareto e il progresso della scienza, *Giornale d'Economisti*, 1924 pp. 22-24.

⁶⁸ Comp. WEBER M., *Gesammelte Aufsätze zur Religionssoziologie*, Tübingen, 1922, Vol. I pp. 21-22, 82, 183, 238 and *passim*.

⁶⁹ Compare with M. Weber's corresponding theory of the purpose of sociological generalization. See further about M. Weber.

in that they will give us an insight into the functional relationship of the phenomena and formulas of uniformities, and the indices of correlations, which approximately describe the most fundamental social processes. Thus these points of Pareto's methodology may be summed up as follows

- A A conception of mutual dependence instead of one-sided dependence
- B A conception of functional relationship instead of that of cause-effect
- C A study of the constant elements of a social system instead of its unique, incidental, and quite irregular components
- D A study of the uniformities and correlations in the fluctuation (in space and time) of these constant elements
- E A quantitative measurement of the uniformities, their fluctuation, and their correlation, instead of a purely qualitative description
- F Following this method, we will obtain a series of formulas which represent a successive approximation to the extremely complex social reality and its dynamics ⁷⁰

Again, it is easy to see that these methodological propositions are practically identical with those of H. Poincaré, E. Mach, Duhem, K. Pearson, and other noted methodologists of science. They are also in complete agreement with a quite recent trend in the interpretation of causal relation, determinism and so on in natural sciences. These concepts are more and more losing their metaphysical flavor of "inevitableness" and "necessity," being transformed into the theories of functional relations, which are based on the principles of probability. In accordance with Pareto's principles also is the recent development of the quantitative studies of social phenomena, of mathematical statistics, and of the mathematical theory of correlation (including partial correlation), and a

⁷⁰ PARETO, *op. cit.*, Vol. I, pp. XIII-XVI, §§ 96, 99, 138, 254-255, 267, and *passim*. Vol. II, §§ 1731-1732, 1767, 1861, 2061, 2080, 2088-2104, 2336, and *passim*. Pareto's criticism of the "causal" theories of the most prominent authorities is highly instructive.

trend to perfection in the mathematical theories of variables, and so on

Now let us see briefly how this plan has been carried on by Pareto. His subsequent propositions, backed by a long and elaborate inductive analysis of the facts and mathematical formulas, may be outlined here only schematically. Those who are anxious to study Pareto's corroborations should turn to his work, where nearly two thousand pages are filled by corresponding proofs.

PARETO'S CONCEPT OF SOCIETY

Some sociologists depict society as an organism, some others, as a mere totality of individuals while still others use the term mechanism. Accordingly, we have sociological organicists, realists, nominalists and mechanisticists. Pareto remains rather out of all these schools. For him an existing social group is a mere "social system" which, as long as it exists, is in a state of equilibrium, that is, in a state in which the forces which try to disrupt the social system are successfully counterbalanced by the integrating forces. Following the path of other social physicists, Pareto, for the sake of simplifying the study, views society as a system of human molecules which are in a complex mutual relationship.⁷¹

PARETO'S THEORY OF FACTORS

The concrete forms of a social system are many and various. Then what are the factors responsible for a certain form of it? "A form of society is determined by all the elements which influence it, the form in its turn reacting on these elements." All these elements or factors, may be divided into three classes: "(1) soil, climate, flora, fauna, geologic conditions and so on, (2) other elements exterior to the given society at a given time, such as other societies which are exterior to a given society

⁷¹ PARETO, *op. cit.* Vol. II, pp. 1306-1316, §§ 2060 ff. Notice here Pareto's mathematical formula of social equilibrium. Not very different from Pareto's concept of social equilibrium is that of F. Carli. "Social equilibrium," says Carli, "is a totality of the internal rhythms (between the elements of a social system) and the interno-external, which develop in a non-contradictory manner. In other words it is a totality of the correlated internal and interno-external variations which go on either being constant or varying in a uniform manner." CARLI, F. *L'Equilibrio delle Nazioni*, Bologna, 1920, p. 34.

spacially, and the consequences of the preceding stages of the society exterior to its given stage in time," (3) the inner elements of a social system, such as race, the character of the residues and feelings, interests, ideologies and other qualities of the human molecules which compose a given social system⁷²

This shows that in this respect, Pareto is a pluralist. These elements, as a rule, are mutually dependent. "In order to explain completely a given social form, it would be necessary to know all these numerous elements quantitatively, their effects, their combinations, their correlations." Unfortunately, at the present time such a knowledge is impossible. In order to make it possible we will have to simplify the situation, to take only some of the more important elements disregarding at least for a time, the less important ones. Only when each of these important elements and their combinations has been studied thoroughly and quantitatively will a complete sociological synthesis be possible. Meanwhile, we must satisfy ourselves with a simplified study of the social system and of the most important factors of its equilibrium⁷³

THE ELEMENTS OR FACTORS STUDIED BY PARETO

Of the above numerous factors or elements, Pareto studies thoroughly some specific ones, namely (1) "residues" (reminiscent of Allport's "prepotent reflexes," or psychiatrists' "complexes"), (2) "derivations" (speech-reactions, ideologies), (3) economic factors (4) heterogeneity of human beings and social groups, (5) social mobility and circulation of elites. It is understood that Pareto does not think that these elements exhaust all the important factors responsible for the form of a social system. Many other factors are important but these are not studied by Pareto for the reason that a thorough study of even the above five elements is exceedingly complex and difficult. Other sociologists will have to make a careful and quantitative study of additional factors. This explains the character of Pareto's "Treatise in Sociology." It is a kind of monographic study of the above mentioned five elements in a social system. In other words,

⁷² PARETO *op cit*, Vol II, § 2060

⁷³ *Ibid*, §§ 2061-2066

Pareto simplifies methodologically a real social system, assuming that it is composed only of these five elements, and in this way tries to construct a rough theory which is to be an approximate image of a real and much more complex social system. Having no space here to follow Pareto's long and painstaking analysis of the forms, the correlations and combinations, the fluctuations, the indices, and the effects of each of these five elements, all that I can do is to give only dogmatically some of his principal conclusions.

PARETO'S CONCLUSIONS CONCERNING THE RESIDUES AND DERIVATIONS

I Among other elements the equilibrium of a social system depends upon the characteristics of its human molecules, particularly on their forms of behavior, or their actions. Human actions depend greatly on the character of their "drives." Among these 'drives,' the especially important are those which are relatively constant. Pareto calls them 'residues.' His residue is not an instinct, nor is it exactly a "sentiment." It is one of the relatively constant "drives" existing among the members of any society regardless of the question as to whether their constancy is due to instinct or to something else. "Residues" are related to what Allport styles "prepotent reflexes," L. Petrajitzky, "emotions," and what many psychologists style "complexes," as "an inferiority complex," or what A. L. Lowell calls "dispositions." In the final analysis they are based on instincts, but contrary to them their manifestation is not 'rigid' but varies greatly, assuming the most different, even opposite, forms. For instance the sexual residue, contrary to the sex instinct, may manifest itself not only in the actions of copulation (the proper form of satisfaction and manifestation of the sex instinct), but also in sexual asceticism, in the mutilation of the sex-organs, and in the ascetic slandering of sex appetite and sexual life. The same may be said of other "residues" in their interrelation to instincts.¹⁴ "The residues are the manifestation of instincts and sentiments as the

¹⁴ See Pareto's detailed analysis of the residues in the quoted work, Vol. I Chap. VI §§ 842 ff. Vol. II, Chap. XI.

elevation of mercury in a thermometer is the manifestation of a rise in the temperature" ⁷⁵

There are six principal classes of residues, each of which is divided into a series of subclasses. The classes are as follows: (1) *Residues of Combinations* These are the drives to make physical and mental combinations of various things generally, of opposite things, of like with like, of rare things with exceptional events, and so on, (2) *Residues of the Persistence of Aggregates* The drives to keep the persistence of man's relations to other men and to places, of the living to the dead, and the persistence of abstractions, of symbols, of personified concepts, and so on, (3) *Residues (or Needs) of the Manifestation of Sentiments Through Exterior Acts* Religious exaltation, political agitation, and so on, (4) *Residues in Regard to Sociability* Drives which compose particular societies and factions, imposing a uniformity on the members of an aggregate, such as neo phobia, pity, cruelty, asceticism, drive for popularity, inferiority and superiority complexes and so on, (5) *Residues of the Integrity of Personality* Drives which preserve one's personality against alteration, the drive for equality, and so on, (6) *Sexual Residues* ⁷⁶

On first approach, this classification may appear very incongruous and yet, when one studies its reasons, and its analysis, it loses a great deal of this incongruity. These residues are found in any society and, in this sense, they are constant elements of any social system. However, their distribution among various individuals and groups is not identical. There are individuals (and groups) with greatly developed residues of Combinations but with few weak residues of the Persistence of the Aggregate, and there are individuals and groups with the opposite distribution. Within the same society, in the course of time, and through various circumstances, the distribution of the residues among its human molecules may be greatly changed. When this happens the social system changes its form.

2 The character of the residues determines the character of

⁷⁵ *Ibid.*, § 875

⁷⁶ *Ibid.*, § 888. See §§ 889-1396, and §§ 1687-2059, devoted to an analysis of these residues.

human actions. They are to some extent a *manifestation of the residues*. Among human beings, this manifestation assumes two principal forms: *actions not followed by speech reactions or by conscious subjective processes* such as instinctive and automatic actions, (Scheme A, [residue] leads to B, [act]), and *actions followed by speech-reactions and ideologies*, or conscientious psychical processes, theories, motivations, justifications, representations of purposes, intentions, "beautification," and other explicit and implicit speech-reactions. The scheme is: A (residue) leads simultaneously to {B (act)

{C (speech-reactions). All these speech-reactions and ideologies, Pareto calls "derivations." This leads to his "sociology of ideas and ideologies," or to a "sociology of human speech-reactions."

3 Some authors have properly remarked that, in this respect, Pareto is near to K. Marx. Like Marx, he does not assign much importance to "derivations" or "ideologies." For him they are but a manifestation of the residues. The residues are "the father of ideologies." The "derivations" are a kind of weathercock which turns according to the direction of the wind of the residues. Their influence is not nil, but it is much less than many think. They are much more variable and flexible than the residues. The same residue may give an origin to, or may be veiled under, different "derivations," and *vice versa*. Sometimes various residues may be "wrapped" up in similar "derivations." The following examples may illustrate this. A residue in the form of the horror of manslaughter is manifested in the following derivations:

"Don't kill because you will go to hell."

"Don't kill because it is forbidden by God."

"Don't kill because it is immoral."

"Don't kill because it is inhuman, or against Law, Progress, and Justice."

"Don't kill!"

These derivations are only "veils" which hide the real agent hindering the act of killing, which is the corresponding residue.

According to the circumstances, the residue may give origin to these and to many other "ideologies" In spite of many differences, all the ideologies are practically nothing but various "dresses" for the same residue

The speech reactions of an orthodox Catholic who does not admit religious tolerance, and those of an ardent communist who violently assails "intolerance," are quite different Their residues are, however, the same, a drive to impose on all others their own standard of conduct and beliefs The speech reactions of many ascetics in regard to sex are the most critical, but the very fact that they talk so much about sex, and so bitterly assail it is an indication that the residue of these "derivations" is the same as that of the "obscene speech reactions" of a profligate person

4 Since action and derivations are so dependent on the residues, there follows from this a series of very important conclusions concerning the residues and dynamics of ideologies First, residues often contradict each other within the same man Hence, our behavior and our actions are, in greater part, also self contradictory and illogical Defining "logical actions" as those in which the intended subjective purpose of an action coincides with its objective result, Pareto, more than any one else, shows that a greater part of our actions are non logical Carried on by a complex play of the residues, we perform an immense number of actions which are non logical or in which the subjective purpose of the action (ideology) happens to be quite different from its objective result Only in the field of logico experimental behavior, in the field of scientific performances, do they coincide Apart from it, and in but a few other cases human behavior is essentially non logical and contradictory, because our residues are often mutually contradictory Our actions are inconsistent from a logical standpoint because our residues are in a dynamic state, wherein the dominant residue at a given moment may be quickly succeeded by another different one Under the influence of the former, we behave ourselves in one way, under the influence of the latter, in quite a different manner In brief, Pareto's analysis of the correlation between the dynamics of the residue and that of action, and conclusions concerning the non logical actions of

human beings, represent, possibly, an unsurpassed analysis of human behavior ⁷⁷

5 With still greater reason, the above may be said of Pareto's theory concerning the nature of the derivations (ideologies). Since the relationship of the residues is so complex and often contradictory, it is to be expected that human derivations (ideologies and speeches) are rarely logical and accurate from a logico-experimental standpoint. An immensely greater part of them, including the political, religious, sociological, economic, and what-not "theories" are non-logical, inconsistent, self-contradictory, or pseudo-scientific. They do not describe accurately the studied facts, but represent a mere "motivation," "justification," "beautification," "rationalization," "moralization," or "idealization" of a kind of behavior to which we are driven by our residues. The residues changing, our "pseudo-scientific" theories change also. One residue giving way to another opposite one, our theory "A is B," gives way to that of "A is non-B." Hence, the logic of human reasoning in the majority of the cases is far from being logical. An ideology is accepted or non-accepted in the majority of cases, not so much because it is true or false, but because of its agreement or disagreement with our residues. This explains the influence of newspaper propaganda, of fiery speeches, and of all kinds of utterances which influence our emotions and sentiments. Instead of scientific proof, they use the authority of purely verbal pseudo proofs, which appeal to our proclivities. In spite of this, such derivations are often even more convincing than scientific proofs, if the derivations are in agreement with the dominant residues. Hence, if we wish to change the opinions and ideologies of a man or a group, the best way is to change their residues. The residues being changed or destroyed, the corresponding derivations (ideologies) will also be changed (*Ibid*, Ch. XI). From this standpoint, the sociology of Comte with its ideals (derivations) of Positivism, Progress, and Religion of Mankind, is as unscientific as the rudest fetishistic belief. The theories of Progress, Solidarity, Democracy, Justice,

⁷⁷ PARETO, *op cit*, Chap. II. Compare LOWELL A. L., *Public Opinion in War and Peace*, *passim* and Chaps. I-III. President Lowell in his special analysis comes to conclusions very similar to Pareto's statements.

Socialism, Nationalism, Patriotism, Internationalism, and so forth, are the same non logical derivations, only differing in form from primitive magical and religious beliefs which they assail. Almost all the ardent fighters of prejudices and superstitions are but a variety of the same superstitions and similar to the dogmatic minds whom they fight. Considering consecutively all of the most prominent contemporary social thinkers, like Comte, Spencer, H. Sumner Maine, not to mention a legion of various "ideologists," Pareto convincingly shows the inconsistency, self-contradiction, fallacy, and illogicity of their statements, while he indicates the residues responsible for this "pseudo-scientism." More than anyone else, he has shown the "pseudo scientific nature" of the "Gods (concepts) of Progress," "Evolution," "Democracy," "Solidarity," "Justice," "Law," "Natural Rights," "Morals," and so on. For him these "scientific" concepts and theories are as fallacious as any of the rudest superstitions. They are the same non logical derivations, only "dressed" according to the fashion of the day. That is the whole difference. Therefore like some of the behaviorists, Pareto views "derivations" as "minor reactions" in our behavior. He indicates the impossibility of basing any scientific conclusion about a man, group, or epoch on the corresponding speech reactions only. For him they are only a kind of very misleading thermometer indicating what residues are behind them.

The above is sufficient to give an idea as to why Pareto does not pay much attention to the "derivations." A long part of his work is devoted to a study of the fluctuations of the derivations in correlation with the fluctuation of the residues. Although the residues fluctuate also, the tempo and the amplitude of their fluctuation is much slower and limited than that of the derivations. They are especially variable and changeable. Further, Pareto shows that, in spite of the difference of the derivations in their concrete forms among various people and times, the principal classes of residues wrapped in the ideologies are relatively constant. To a superficial observer, there is an immense difference between a savage who deifies his fetish or king, and an atheistic socialist of the present time, and yet both of them have the same residue of "deification." The only difference is

that the savage defies some fetish and, for a corroboration of his belief, makes reference to a "magic code", while an atheist defies K Marx, Lenin, or Rousseau, and for corroboration of his statement quotes Marx's "Capital," Rousseau's "Discourse," or what not. In the past the residue of obedience was manifested principally in a subordination to the kings, priests, and nobility. Now these are slandered, but the residue remains and manifests itself in an obedience to the demagogues, leaders of labor unions, captains of industry, and so forth. The "dresses" are different, but the residue is the same. The residue for imposing uniformity on the members of a society has been manifested in the past in religious intolerance, in a persecution of attacks on private property, divorcees, short skirts, and so on. Now we are tolerant in this respect, but instead we have an intolerance toward drinking (prohibition), and toward any criticism of the actions of reformers and the followers of the "Religion of Humanity," "Progress" and so on. Derivations have changed, but the residues remain. The above conception of Pareto does not mean, however, that all these derivations are absolutely inefficient or socially harmful. They have some efficiency, though not so great as many think. Further, in opposition to all those who think that every truth is useful, while every superstition is harmful, Pareto stresses the point that the real situation is different. Many prejudices (derivations) have happened to be useful in keeping the integrity of a social system, while many truths have facilitated its disintegration. In other words, a derivation (myth, legend, ardent belief, or superstition which beautifies the reality inspiring enthusiasm) may be useful for a group, and on the other hand, a naked truth may often be disastrous. In this point Pareto comes to conclusions similar to those of Machiavelli, J. Frazer, G. Le Bon, G. Sorel⁷⁸ and others. In their own way, superstitions and illusions are as vital for a society as the logico experimental truths. The above gives the most general outline of Pareto's leading ideas in this respect. Briefly summarized, the material in the book con-

⁷⁸ See, for instance, FRAZER, J. G., *Psyche's Task* Lond., 1913. SOREL, G. *Reflection on Violence* pp. 133 ff., N. Y. 1912. Sorel's theory of the usefulness of myths.

sists of painstaking analyses of the influence of the residues on derivations, of the residues on residues, the influence of environment on the residues, of the derivations on derivations, of the derivations on the residues, and the fluctuation and diffusion of both the residues and the derivations. I am compelled to omit this material because of lack of space.

6 Among other points of Pareto's theory of residues there should be mentioned his statement that the above six classes of residues are distributed unequally among various individuals, social classes, and social groups. There are individuals and groups with many and strong residues of the first class (the Residues of Combinations) and there are other individuals and groups with numerous and strong residues of the second class (of the Persistence of Aggregates). The same is true in regard to the other classes of the residues. This is important in the sense that the character of the predominant residue shapes the human personality of an individual or a group greatly. It puts a conspicuous stamp on them, and determines to a great extent either the behavior of an individual, or the character of the social organization of a group. Among these classes of residues, some of the especially important are those of the first and the second class. On their bases Pareto outlines his hypothesis of two principal *social types* of individuals: that of the *speculators* and that of the *rentiers*. To the first type belong all those who have strong and numerous residues of combination. They are the combiners, entrepreneurs, and machinators, who are always contemplating some new combination (financial and business schemes, inventions, political and diplomatic reconstructions, or something else). Whatever the field of their combinations is they always have a new combination. In this respect they are reformers and reconstructers. They do not have psychological conservatism. Often they are unmoral and dishonest, being too plastic in all respects. The *rentiers* are those whose predominant residue is that of the persistence of the aggregate. For this reason, they psychologically represent the type of the conservative, those who do not care for innovations or for new combinations, but who try to save, preserve, and maintain that which already exists. They are the people with a strong sense of duty, with a narrow but

determined will, and with decisiveness in their actions. They may be found among the "narrow minded," determined leaders of any movement. They are rigid in their behavior and often fanatical.

In this sense, these are the eternal types found in any society. When the first type, or the speculators, is predominant in a government (common among democratic and plutocratic governments), the upper classes show an ability for combination. Through this power, they temporarily promote the economic welfare of a society. They successfully deceive the governed masses through various humanitarian and democratic machinations, promises, and so on. Naturally they are corrupted. The corruption and machination sooner or later bring disastrous results, which causes the upper classes to be eventually superseded by the opposite type, or the *rentiers*. In this way the alternation of the types has happened many times in the history of various countries and is going on at this time. According to the author, the majority of any pre war democratic governments is composed of the plutocratic parliamentary machinators or corrupted "speculators." They have an ability for combination but at the same time they are so corrupted and become so soft hearted and "humanitarian," that they are superseded by people of the type of *rentiers* (regardless of whether such a substitution is good or bad).⁷⁹ Events seem to have considerably corroborated Pareto's expectation.⁸⁰

PARETO'S CONCLUSIONS CONCERNING OTHER ELEMENTS IN THE FORM OF A SOCIAL SYSTEM

In a less detailed way Pareto also studies other important elements of the factors of social equilibrium: the economic factors or interests, the heterogeneity of human beings, and the social stratification and circulation of the elites.

Economic Interests—We can scarcely question that "individuals and groups are pushed by instinct and reason to appropriate useful or agreeable material values, and to seek for honors

⁷⁹ See Chap. XIII, where an analysis is made of some experimental studies of personality types analogous to the types of Pareto.

⁸⁰ See about this theory, PARETO *op. cit.*, Vol. II Chap. XII.

and esteem," or in other words, that they have 'interests' The totality of such interests plays a considerable part in determining social equilibrium Their complex reality cannot be explained completely by economics, but requires a synthetic sociological study On the other hand, sociology cannot explain the complex social reality, unless it takes into consideration the propositions of pure economics as a special science, which studies them in an isolated way, and under simplified conditions The economic interpretation of history is right so far as it insists on the important role of economic factors in social phenomena But it is wrong in so far as it tries to explain them only through this factor or makes it a 'cause,' while other factors are made mere 'effects' To this extent the theory is a mere variety of the above simplistic theory (See also the chapter upon the Economic School)

Social Heterogeneity—The next important and constant element or factor in a social system is the heterogeneity of the individuals It is again an eternal fact and an unquestioned one Physically morally, and intellectually, individuals are heterogeneous From this heterogeneity, the phenomena of social stratification and social inequality originate These also are eternal and constant elements of any social system In connection with this part of his theory, Pareto develops his sharp criticism of the theories of equality, democracy, self government, and so on All corresponding ideologies are mere derivations not corresponding to the facts at all There never has been any social or political system in which equality or real democracy has been realised What is styled democracy is rather plutocracy, the control of the governed people principally through deceit, machination, and combination, and by demagogues capitalists, hypocrites, and cynical persons Another important type of government is that of rude coercion, which controls through the application of physical compulsion One may be as good or bad as another Whatever devices are used, the basic fact of the heterogeneity of individuals will produce social inequality and stratification In ideologies there may be used such epithets as democracy, equality, and other high sounding phrases They cannot, however, annul the facts of stratification exhibited in all societies and groups

Circulation of the Élites—The existence of social stratification means that in every society there are, roughly speaking, two principal strata—the lower and the upper classes. The distribution of the residues among them is different, and they differ in many other respects. Since there is a stratification, there must be also a circulation or shifting of individuals from the lower to the upper classes, and from the upper to the lower classes. Its intensiveness varies from society to society and from time to time, but, in some degree, it exists even in a caste society. One of its permanent causes is that any existing aristocracy is sooner or later doomed to disappear. “History is a cemetery of the aristocracies.” The vacuum created by a dying out of the aristocracy must be filled, and the filling is accomplished through the climbing of the fittest members of the lower classes to the upper social positions. In this way within every society goes on a constant process of circulation of the elites. Studying some of its details, Pareto shows the principal methods through which aristocracy or plutocracy tries to keep its position. Such methods are—extermination, imprisonment, bribery, corruption, and the elevation of the possible and dangerous leaders from the lower classes. Here again this ‘K. Marx of Bourgeoisie’ sets forth theories similar to those of the most radical revolutionary syndicalists and anarchists. On the other hand, contrary to the ‘soft hearted ideologists of a liberal humanitarianism,’ he claims that a ‘liberal’ opinion about the inefficiency of physical and cruel measures for the maintenance of the privileged aristocratic positions is wrong. Together with Sorel he states that by the proper application of a vigorous force and cruel coercion aristocracy can maintain and prolong its existence and that, contrary to popular opinion, such cruel aristocracies have existed for a longer time than the meek ‘humanitarian aristocracies.’ For this reason Pareto prophesies the downfall of the present parliamentary, soft hearted and pacifist plutocracies of the democratic countries, and the ascent of a new rough virile, and militaristic aristocracy from the lower classes.⁹¹ Such a cycle has happened many times and will happen again in the future.

⁹¹ This has been realized by Fascism, which offered to Pareto a place among its ideological leaders.

Having outlined these constant elements of a social system, Pareto proceeds to correlate them with each other, with the residues, the derivations, and with a series of other phenomena ⁶²

PARETO'S CYCLICAL CONCEPTION OF SOCIAL CHANGE

Studying the oscillations of various phenomena, Pareto gives a series of cyclical theories for various social processes. A "linear conception" of social change remains strange to him. He shows the fallacies of all "historical tendencies," "historical laws of evolution," and of "linear theories of the stages of progress." What is factually given in history is only the fluctuations and oscillations of various lengths of time, and of various velocities. The existence of any perpetual "linear" evolution of a society or social institutions has not been proved.

Such, in brief, is a simplified skeleton of the principal ideas of Pareto's sociology. As I have mentioned, this can give only a remote idea of Pareto's book. Its value lies perhaps, not so much in the character of his general theory, as in a series of research monographs, whose combination it represents. An abundance of mathematical formulas, diagrams, and a long series of historical and factual corroborations, plus a poor arrangement of the materials, makes an adequate summary of the work in a brief form exceedingly difficult. Nevertheless, some idea of it has probably been given in the above.

7 CRITICISM

In the opinion of the writer, the leading ideas of Pareto's sociology are to be recognized as sound and promising. Though almost all of these ideas were set forth before Pareto, he has succeeded in developing and systematizing them. His conception of sociology in its relationship to special social sciences is much better than a great many other corresponding theories. His theory of the mutual dependence of various social phenomena, and of functional and quantitative methods of their study, is in agreement with the present tendency in natural and social sciences. His analysis of human behavior, of the rôle of the residues and

⁶² PARETO, *op. cit.* Chaps. XII-XIII.

derivations, and of the non logical "logic" of human actions, is again likely to be true. His somewhat sharp and "ironical" utterances concerning the non scientific character of a great many "sociological" theories are to be recognized as valid. His idea of successive approximations, and of the necessity for concentrating our attention on relatively constant elements of the social system, appears valuable also to me. Finally, his theory of the heterogeneity of human individuals, of social stratification, of the circulation of the elites, and his criticism of the "sweet" ideologies of Progress, Democracy, Solidarity, and so on have been corroborated and developed by many other authors. Part of this has been done independently, and part under Pareto's influence.⁸³

Side by side with these valuable characteristics, Pareto's theories have some serious shortcomings. In the first place, his concept of the residue remains somewhat unclearly defined, and,

⁸³ The theory of the heterogeneity of individuals and groups, as we shall see further, has been developed by a great many biologists and sociologists of the racial and anthropological school (Gobineau, F. Galton, H. Chamberlain, K. Pearson, O. Ammon, V. de Lapouge and all the eugenicists and hereditarists. See the chapter about the Racial and Anthropological School). The same authors, and many others, developed the above ideas of the social circulation of the elites. Under Pareto's influence, the theories of circulation and of social equilibrium were developed by M. KOLABINSKA, *La circulation des elites en France*, Lausanne, 1912. SENSINI, G., 'Teoria dell'equilibrio di composizione delle classi sociali', *Rivista Italiana di Sociologia*, Sept., Oct., 1913. See also SENSINI, *La teoria della Rendita* and BOVEN, P., *Les applications mathematiques à l'economie politique*, Lausanne, 1912. CARLI, F., *op. cit.* Finally, the writer in his study of social mobility, found many of Pareto's ideas suggestive. See SOROKIN, *Social Mobility*. See there other references concerning social circulation and stratification. Theories similar to Pareto's leading ideas about democracy, solidarity, inevitability of social stratification, the plutocratic and oligarchic character of a democratic or equalitarian régime, the rôle of violence in history, the dying out of aristocracy, and so on, some earlier, some later, some independently, and some under the influence of Pareto have been developed by a series of prominent authors. See DANILEVSKY and LEONTIEFF, *op. cit.*, LE BON, G., *The Crowd*, especially his *Psychology of Socialism*. MOSCA, G., *Elements di scienza politica*, 1895. OSTROGORSKY, M., *La démocratie et les parties politiques*, Paris, 1912. MICHELS, R., *Sociologia del partito politico moderno* (transl. into French, English, German). MAINE, HENRY S., *Popular Government*, Lond., 1896. SOREL, G., *Reflections on Violence*. KROPOTKIN, P., *A Rebel's Speeches* (*Rech. buntovschika*), Russ., 1919, *passim* the works of theorists of the revolutionary syndicalism like Lagardelle, and others, BRYCE, J., especially his *Modern Democracies*, N. Y., 1921. LOWELL, A. L., *Public Opinion in War and Peace*, LIPPMAN, W., *Public Opinion*, N. Y., 1922 and especially his *Phantom Public*, 1925. As to Pareto's theory of the cyclical concept of social processes, see the paragraph about Cyclical Conception in this book.

in its essence, it is "subjective," in the sense that it is taken as a kind of an inner "drive" (sentiment, instinct) which could not be objectively studied and measured. Like many other psychologists, Pareto "puts" these "residues" into a man, and later on deduces from them whatever he likes. For this reason, all the objections applied to similar psychological interpretations (see the chapter about the Psychological School) as a variety of "animistic conceptions,"⁸⁴ must be applied to Pareto's method and theory. It is true that Pareto went much further in such a study than almost all psychologists, and yet he could not completely avoid the inadequacy of such a method. From this it follows that such inner "drives" are almost impossible to study objectively and quantitatively. In spite of Pareto's inclination to such a quantitative study, he did not factually give a real quantitative investigation of his residues. This explains also why Pareto's classification of the residues appears to be considerably arbitrary and questionable, naturally influencing many of his deductions and conclusions in the same way.

In the second place, it is hard for me to discriminate his "residues" from his "interests," as economic factors. The boundary line between them is very dark and poorly drawn. For this reason it becomes difficult to determine just exactly what is the degree of influence exerted by each of these factors in determining social equilibrium.

In the third place, Pareto himself many times stresses the fact that the same residue may be wrapped into the most different derivations, and that, for this reason, it is always very uncertain exactly what residue is the source of a certain derivation. This very fact makes questionable Pareto's many reductions of the certain derivations to the certain residues. His conclusions may and may not be true. Because of this we are often at sea, and do not know the real relations of the residues with the derivations.

⁸⁴ A primitive man puts into, or behind the given phenomena, various "spirits" and through their activities explains all concrete phenomena—beginning with the thunderstorm and ending with birth, death, and other conspicuous facts in human life. The psychologists, instead of the old-fashioned "spirits" or "mysterious supernatural powers," put into man "emotions," "wishes," "ideas," "residues" and what not and through their influence try to interpret human and social phenomena as a "manifestation" of their activity. It is easy to see that the procedure in both cases, is essentially the same,—animistic. The only difference is in that of the terminology.

In the fourth place, Pareto's theory of social circulation is too general and inadequate. It needs many corrections and much development.

These remarks show the most important weak points of Pareto's theory. However, they do not annul his valuable contributions to the methodology of social science, to the sociology of human speech reactions and ideologies, or to the whole concept of social phenomena. His work is possibly the best continuation of the plan of social physics developed by the thinkers of the seventeenth century. Pareto tries to carry on this plan, throwing aside its weak points and promoting what is valuable in this magnificent contemplation. If the other contemporary mechanistic and energetic theories mentioned above have factually added very little to the theories of the seventeenth century, in Pareto's works they reappear again with all their brilliancy and fascination. Pareto's studies show that, properly taken, the social physics of the seventeenth century is not a mere dream of a bold human mind, but may be developed into a real scientific sociology which will probably not be able to disentangle all the "mysteries" of human behavior and human history, but may clarify, to some degree, the more important of them.

A series of other mentioned studies which proceed along the lines of Pareto's principles and which have already given some valuable results, seem to warrant such an expectation, and stimulate the cultivating of 'the mechanistic and quantitative investigations of social systems,' as has been outlined by Pareto.

CHAPTER II

FRÉDÉRIC LE PLAY'S SCHOOL

THE name of Frederic Le Play deserves to be put among the few names of the most prominent masters of social science. He and his pupils have created a really scientific method of the study and analysis of social phenomena, they elaborated one of the best systems of social science, and finally they formulated several important sociological generalizations. In all these contributions Le Play and his continuators have displayed a conspicuous scientific insight, a brilliant talent for scientific analysis and synthesis, and an originality of thought. As a result they compose a real school in sociology with very definite methods and principles.

I BIOGRAPHICAL DATA AND HISTORY OF THE SCHOOL

Pierre Frederic Guillaume Le Play was born April 11th, 1806 in a French village between the port Honfleur and the forest of Brotonne. His father, who died in 1811 when Frederic was still a child held an unimportant position in the revenue service. His mother was a woman of strong character with profound religious convictions. The early years of Le Play were spent in a village under conditions of hardship and need. From 1811 to 1815 he stayed in Paris in the family of his father's sister. Here the boy received his first intellectual education. In 1815 Le Play had to return to his native village, where he stayed the next seven years attending the College du Havre. In 1825 he entered the École Polytechnique and in 1827, the École des Mines. In 1829 he and his friend, Jean Reynaud made a scientific trip to Germany. During the time of this study they walked about 4000 miles. He graduated with a brilliant record from the School of Mines in 1832 and then became co editor of the

Annales des mines, in 1835, the head of the Government Committee on Mining Statistics, and in 1840, professor of Metallurgy and sub director of the School of Mines. During the next few years, as a recognised authority in mining, he was invited by different countries to direct the improvement and re-organization of the mining industry. One of these countries was Russia, where he organized and directed a group of mines in the Urals employing 45 000 men. These foreign positions gave him an opportunity to visit and to study thoroughly all of the European and some of the Asiatic countries. In 1855 he published his famous *Les ouvriers européens*, the result of his scientific study for more than a score of years. In 1856 he founded 'The International Society for Practical Studies in Social Economy'. Branches were established in many countries. Its activity was manifested in the publication of many family monographs which composed the series *Les ouvriers des deux mondes*. In 1864 he published two volumes of *La réforme sociale en France*, and in 1870, *L'organisation du travail*. In 1867 he became a Senator in the French Assembly. In 1872 he founded the "Union of Social Peace" to study social questions according to the methods of natural science. In 1881 he began to publish *La réforme sociale* a fortnightly publication of joint scientific and practical interest. In the same year he published his *Constitution essentielle*. His death occurred in 1882.¹ Outstanding characteristics of Le Play's personality are a great sincerity, a great honesty, a deep religious feeling and a mind well trained in natural sciences. The outstanding characteristics of his environment are his origin from a humble family, his life among country people, the events of the great French Revolution and the revolutions of 1830, 1848, and 1870-71, and, finally, his extensive travelling throughout Europe and Asia. The social upheavals and their disastrous results stimulated his interest in a study of social phenomena and also his desire to find a scientific method

¹ For his biography see HERBERTSON DOROTHY 'Le Play and Social Science' *The Sociological Review* Vol. XII, pp. 36 ff., 108 ff. Vol. XIII, pp. 46 ff. DE CURZON, EDM. *Frédéric Le Play*, Paris 1899. DEMOLINS, E., *Nos deux premiers maîtres*, *Société Intern. de Science Sociale* l'Origine, le But et l'Organisation de la Société, *Brochure de propagande*, Paris Bureaux de la Science Sociale, many data are given in the works of Le Play himself and in those of his pupils.

to improve social conditions. His intense moral and religious nature gave great sincerity to this desire. His talent and excellent training in natural sciences made it easy for him to discover and apply scientific methods to a study of social facts.

The work, begun by Le Play, attracted many pupils and collaborators. After his death, they continued his work and introduced some substantial improvements in his methods, as well as in his statements and theories. Among these pupils and collaborators, the most prominent were Henri de Tourville (1843-1903), Edmond Demolins (1852-1907), Robert Pinot, Paul de Rousiers, Vidal de la Blache—although V. de la Blache does not belong to Le Play's school, his works influenced to a considerable degree the geographical part of the school's sociological system—and many others. They founded the "Société Internationale de Science Sociale" and its review, *La science sociale*. This valuable scientific publication has included many important sociological studies and monographs. Later on a portion of these studies was published in book form. Among these publications probably the most important are: H. de Tourville *The Growth of Modern Nations*, (Engl. tr. N. Y., Longmans, Green & Co. 1907), E. Demolins, *Comment la route crée le type social* two vols., *Anglo-Saxon Superiority To What Is It Due?* (Engl. tr. London, 1898), P. de Rousiers, *La vie américaine, La question ouvrière en Angleterre*, and J. B. M. Vignes, *La science sociale d'après les principes de Le Play* two vols., Paris 1897. A short exposition of the principles and methods of the school is given in a special *Brochure de propagande Société Intern. de Science Sociale, L'Origine, le But et l'Organisation de la Société*, Paris.² Recently the English Sociological Society has begun to study and to promote the principles of the Le Play school.³ As a result we have a great revival of interest in this school and new studies of a similar nature. Although Le Play has now been dead almost half a century his influence does not show any symptoms of weakening or decay. It is still very vital and is likely to con-

² One of the papers of this book, DE ROUSIERS P., *La science sociale*, is translated and published in the *Annals of the American Academy of Political and Social Science* Vol. IV 1893-94 pp. 620-646.

³ See *The Sociological Review* Vols. XI, XII, XIII.

tinue so Let us now turn to a study of the characteristics of this school ⁴

2 METHODS OF LE PLAY'S SCHOOL

The contributions of Le Play's school to social science consist first, in the creation of a definite method of analysis of social facts, second in the composition of a definite sociological system and the formulation of a series of sociological generalizations and third in the setting forth of many practical propositions for improvement of social conditions (applied sociology) Let us briefly survey each of these contributions

At the beginning of his social studies, Le Play realized that the principal obstacle to the scientific study of social phenomena consisted in the lack of a real scientific method which might be used conveniently for the analysis of social phenomena Before the time of Le Play it was understood that social science must be based upon the observation of social facts and their inductive analysis But it was uncertain how social phenomena should be observed and what facts were the most important in the immense amount of material Le Play fully realized that in order to be able to observe an enormous multitude and variety of social facts scientifically, an investigator had to have a simple and definite unit of social phenomena, whose study, like that of the atom in physics and chemistry, or of a simple cell in biology would give all the essentials of the more complex social facts Thus, the first problem to be solved was the problem of an elementary and basic social unit The second problem consisted in finding a method for the quantitative measurement of different components or elements of the unit The mathematical mind of Le Play understood that without quantitative measurement the study was doomed to be vague and uncertain, and the results of doubtful value The first of these problems was solved by taking *the family for the elementary and basic social unit*, and the second, by using *the family budget as the quantitative expression of family life and, correspondingly, a basis for a*

⁴I do not give Le Play's predecessors Being synthetical in its character, Le Play's theory has to be regarded as a continuation of the works of all social thinkers who contributed to all the principal sociological schools The names of these thinkers are given in the subsequent chapters of this book

quantitative analysis of social facts The reasons for these selections were numerous The family is the simplest and the most elementary form of society In various forms it exists in all societies and at all times because of the helplessness of the new-born babies The family is the group which takes care of them It is an institution which procures the means of subsistence for its members It is the first social environment which surrounds, trains, and educates these new-born children Through this environment it shapes them as the members of a society All of the elementary social and political interrelations exist in the family It is the one group which exists among all peoples and, indeed, many peoples do not have any more complex social organization In short the family is the universal and simplest model of society and contains all of its essential characteristics⁵ On the other hand, the family budget reflects the entire life, organization, and functions of the family By analyzing carefully all items of family income and of its expenditures, we obtain a quantitative expression of the whole family life, its organization and functions⁶ Such were the starting points of the method of analysis of a social system introduced by Le Play This, however, was no more than the starting point Le Play fully understood that the organization and functions of any family are conditioned by many factors In the first place, one of the fundamental functions of the family is obtaining means of subsistence for its members, consequently family organization is determined by the methods of obtaining the means of subsistence—*work* But these methods again are determined by the environment in which the family lives, by *place* and primarily by geographical *place*, because the character of the *place* determines the *work* through which the families obtain their means of sub-

⁵ See in the *Brochure de propagande*, DEMOLINS, E., "Comment on analyse," pp 74-77, PINOT, R., *La classification des espèces de la famille*, *passim*, VIGNES, *op cit*, Vol I, Chaps. I-II LE PLAY, *Ouvriers européens*, Vol. I, *passim*, *La réforme sociale en France*, 1866, Vol I, Chap III

⁶ See LE PLAY, *Ouvriers européens*, second edit, Vol. I pp 224-228 "All the acts which constitute the life of a workingman's family result more or less directly in an income or an outlay 'observer possesses a complete knowledge of a family when he has analysed all the items which are found on the debit and the credit side of the domestic accounts and where he has obtained an exact correspondence between the two tables'

sistence Thus we have the famous formula of Le Play *Place, Work, and People, (Family)* In this way the social unit (*family*) is connected with geographical *environment* and *work* But that is not all In so called compound societies there are many social groups and institutions larger and more complex than the family If family type determines their character, they, in their turn, influence the family type Hence, it was necessary to continue the analysis of the social system beyond the family institution and to proceed to the analysis of neighborhood, county, province, state and other larger social groups, within which the family exists Thus, Le Play connected the family with all the essential conditions which in their totality compose the system of a given society Beginning with the family his system of analysis embraced the *geographical location* of the family and of a corresponding society the *work or economic organization of the family and of a corresponding society*, and the *whole social and political institutions* of a given society In other words almost all the essential factors and constituents of a social group were included in this analysis At the same time by an analysis of the family budget he found a very convenient method of quantitative analysis of corresponding phenomena Thus after long and systematic work Le Play elaborated his method of the study of a social system which he emphasized in his "Workingmen of Europe" and which he used for his famous family monographs published in this fundamental work¹ There is no need to say that this pioneer work done by Le Play found a great many followers His system of analysis of family budgets, with slight variations, is used by economists of the present time. He himself, used this method to make a number of brilliant analyses of social systems His own monographs about various types of families and corresponding societies are still the most accurate and unrivalled examples of studies of social phenomena and types

His followers, however, found that the method of Le Play had some defects In the first place, Le Play's scheme of analysis of social systems was relatively inadequately developed in that part which concerns the organizations and institutions which are beyond or larger and more complex than, the family The

¹ See the nomenclature and its items in the volumes, *Les ouvriers européens*

monographic method of Le Play "did not grasp society as a whole, it allowed facts of great importance to escape so that a conscientious disciple could perform his task with exactness and yet fail to see the underlying causes of the prosperity or of the wretchedness of the country where his observations were made ' In the second place, the family budget method "deals only with phenomena which can be expressed in dollars and cents ' Here again are shortcomings even in regard to the study of the family itself, because "it is not true that all the acts which constitute the life of a family result *always*, even indirectly, in an income or in an outlay For instance, the essential function of the family, the education of the children, cannot be expressed in figures " The same is true concerning the history and the origin of the family Further, "the budget never gives more than one of the elements which should enter into a proper appreciation of them, that is the money value The others are overlooked " ⁸ Furthermore, Le Play, in connection with the same quantitative method, emphasized the procuring of means of subsistence as the primary function of the family and somewhat underestimated the functions of the training and education of its children This led Le Play to an overestimation of the methods of the transmission of property in the family from father to children and, on this basis, led to an unsatisfactory classification of fundamental types of families ⁹

These defects influenced his most prominent followers to revise, modify and perfect his method This work has been done by Henri de Tourville, by Demolins, de Rousiers, Pinot and some others As a result we have the so-called *La nomenclature de la science sociale* which preserves all the essential characteristics of the Le Play method but in a modified and improved form Let us glance at this *Nomenclature* which represents a very careful and systematic scheme for the analysis and study of social systems and organizations E Demolins is correct in saying that "the *Nomenclature* is an extraordinary accurate and convenient instru-

⁸ DE ROUSIERS P, "La science sociale," *Annals of the American Academy of Political and Social Science*, Vol IV, pp 135-141

⁹ See PINOT, R, *La classification des espèces de la famille établie par Le Play, est-elle exacte?* in *Société Intern de Science Sociale, Brochure de Propagande* pp 44-64.

ment of social dissection. It supplies a kind of a sieve which permits us to sift all elements of a social type and to classify them according to their qualities within a series of twenty five divisions.¹⁰ In this *Nomenclature* the family is still the starting point of the analysis (social unit) but its characteristics, its relations to its total environment and the environment itself are grasped in such a systematic and exhaustive way that having studied a typical family or a group of families through all of the twenty five divisions, an investigator easily grasps the whole type of a society, its organization, conditions, composition and factors. The *Nomenclature* leads an investigator from the simplest to the most complex phenomena. These twenty five fundamental divisions, each subdivided into many subdivisions, are as follows:

- I *Place of the Family* (physical geography of family or society)
Soil, sub-soil, configuration of surface, rivers, streams, distribution of water, climate, plant environment, steppes, forests, and so on, animal environment of the earth and the waters.
- II *Work or Labor of the Family* 1. Simple collection of the gifts of the place (picking up of natural products, fishing, hunting) 2. extraction of the necessary products (cultivation and agriculture, mining, etc.) 3. fabrication by hands with the help of animal energy with that of wind, water, falls, fire, coal and oil 4. transportation through carriers by boat, using steam energy, electricity, etc.
- III *Property of the Family* Composition of its values, forms of possession, subvention and transmission, land property and its character, property forms and institutions in the community.
- IV *Movable Property* Cattle and animals, instruments and tools of work, furniture, personal (slaves, etc.)
- V *Salary and Wages* Their objects, amount, forms, etc.
- VI *Savings* Objects, character, amount, forms.
- VII *Family Type* patriarchal, pseudo-patriarchal, particularist, unstable, father, mother, children, their number, apti-

¹⁰ DEMOLINS, E. Comment on analyse et comment on classe les types sociaux,
 in *Société Intern. de Science Sociale Brochure de Propagande* p. 76.

tudes, married children, emigrants from family, single, servants, old members, sick and disabled members

VIII *Standard of Living or Modes of Material Existence of Family*
Food, home, dress, hygiene, recreation

IX *Phases of Family Existence* Origin of the father and the mother, important events births, education and training, celebrations and festivities, enterprises, alliances and marriages, establishment of heir, replacements and departures, adoptions, donations and inheritances, etc., perturbations accidents and sicknesses, returnings, deaths, unemployments, debts bad conduct condemnations and chastisements, public service, social calamities and other perturbations

X *Le Patronage* (protection and bosses) Patriarch, foreman, bosses, corporations.

XI *Commerce* Shopkeepers, merchants, commercial substitutions

XII *Intellectual Culture* Intellectual culture resulting from the conditions of life, liberal arts and their agents teacher, instructor, physician, scholar, artist, man of letters, lawyer, corporations of arts and professions

XIII *Religion* Private cult, public religious cult, religious corporations, relations of dissenters

XIV *Neighborhood* Next neighbor families, extended neighborhood, diversity and relations of neighborhood

XV *Corporations* Corporations of communal interests, corporations of social welfare

XVI *The Parish* The parish divisions, parish property, parish duties, authorities and control

XVII *Unions of the Parishes* Their diversity, their property and funds, services and duties, participants and agencies, authorities, control and federation

XVIII *The City* Its ecology and geography, its property, interests, services, duties, participants, agencies and authorities, activity and control

XIX *Provincial Divisions*

XX *The Province*

XXI *The State*XXII *The Expansion of the Society* Emigration invasion colonization.XXIII *Foreign Societies* Ways and avenues of contact emigration and immigration competition.XXIV *History of the Society* Historical origin of the present situation historical variation of the society comparison with the previous local societies.XXV *Rank of the Society* Actual rôle of the society in the world reforms the future of the society ¹¹

Such in brief is the *Nomenclature* as a method of analysis and synthesis of society. In its essence it combines all relevant factors which affect social life and organization and combines them in a logical systematic and causal way. The division *place* takes into account what is known under geographic factors and environment. Divisions II III IV V and VI take into account what is known as economic factors. In this way *place* and *labor* determine the type of a family. Divisions VII VIII IX indicate all the essential traits of family organization and functioning. Beginning with division X we go beyond the family and through family relationships with the larger social bodies enter the super family social environment its institutions and groups. By proceeding from the simple to the more complex groups we reach step by step the largest and finally the ultimate social body mankind. We must recognize that the *Nomenclature* takes into consideration almost all essential factors of human behavior and of social processes and organization. Differing from the majority of sociological systems it is free from one-sidedness. It has all that is valuable in the statements of the geographical school in sociology it gives full attention to economic conditions it pays extraordinary attention to the family itself as a social factor it appreciates adequately the role of contact and of interaction that of religion law arts and sciences the influence of the composition and character of all social groups and the role of race and heredity. But that is not all. All divisions of the *Nomenclature* are not mechanically combined in a haphazard way but on the

¹¹ See DEMOLINS *op. cit.*, Appendix DE ROTHIERS, *op. cit.*, pp. 63 f.

contrary, they show a remarkable logic and causal sequence. This sequence does not decide which of the factors is of more and which is of less importance, but it shows how and in what way they condition each other. *Place*, especially in regard to the simple societies, determines the methods of procuring the means of subsistence—*labor*, forms of property and other receipts of the family, these conditions determine the type of family organization and functioning; this determines the type of people who come out of such family, and this again, conditions the type of super-family organizations and institutions. In a modified form which takes into consideration the history of a society of which the family is a unit, the same sequence may be applied to a complex society. Finally, like a botanical classification of plants, the *Nomenclature* is at the same time a systematization of social groups based on a genetic principle.¹² In brief the *Nomenclature* is really a great contribution to the method of social science.

3 THE SOCIOLOGICAL SYSTEM AND THE PRINCIPAL CONTRIBUTIONS OF THE LE PLAY SCHOOL

Using the above method numerous followers of Le Play have made many monographic analyses of the social systems of different peoples. Unveiling the factors responsible for the historical destiny and the character of the social organizations of a given society, the analyses have yielded several important sociological generalizations. Let us give samples of how these investigators answer the problem. Why the historical destiny and organization of a given society have been such as they are and what factors are responsible for their character.

After this we shall enumerate the principal generalizations of the school. As an example I will summarize Demolins' study of the peoples of the steppes. The first part of the analysis is a detailed description of the climate and geographical conditions of the steppes of Central Asia and Oriental Europe (analysis of *place*). The principal product of this region is grass. Hence, "exclusive presence of grass determines a uniform mode of labor

¹² The genetic or evolutionary character of the *Nomenclature* is especially stressed in the indicated work of M. Vignes, and in DEMOLINS, *Comment la route crée le type social*, Vols. I, II, *passim*.

pastoral art " ¹³ "We find indeed in this part of the earth numerous groups of shepherds " Of the animals, the most important here is the horse "The steppes are exclusively well adapted to horses, and it is the horse which adapts the steppes to man " "*Without horses the pastoral mode of life would be impossible* " ¹⁴ In the steppes horses are an exclusive means of transportation and migration Horses give the shepherds their principal food in the form of "horse milk," or *koumys*—the food which is exclusively pleasant, rich with all the important elements of nourishment, and easy of preparation For these and many other reasons the horse plays an extraordinarily important role in the life of the pastoral peoples ¹⁵ Thus, through such a character of the steppes the peoples who inhabit them can exist almost exclusively through a mere *collection* of the gifts of nature without being obliged to "cultivate" the necessities and to transform them in any considerable proportion.

Fabrication in such groups is limited to the preparation of a few objects of food shelter, hygiene, and of recreation The character and qualities of these objects are also determined by the steppes In a like manner the forms and the technique of fabrication (*labor*) are determined by the steppes Food is prepared from milk and meat only Its preparation and provision do not demand either a strenuous effort or the existence of special classes of butchers or milkmen The operations are easily conducted by single families The character of the dwelling is likewise determined by the same factor *Nomadic life urges them to have dwellings which may be taken down and moved in few minutes* Hence pastoral tents or *yurtas* are made from the skins of the animals Fuel and the few objects of furniture have the same movable character adapted to the mode of life as determined by geographical conditions The same may be said of cloth The mode of life (out of doors) does not demand any specific forms of recreation There yet remains the necessity for self protection which is satisfied by the fabrication of a few weapons These are easily prepared within each family

¹³ DEMOLINS *Comment la route cree le type social*, Librairie de Paris, Vol. I, p. 9.

¹⁴ *Ibid.*, p. 11

¹⁵ See pp. 11-22

Motor power necessary for all this is almost exclusively human energy. The principal machine is the human hand. This does not require any organization besides the family. It may be seen that all the necessities may be produced within the family. This fact makes any organization larger than a family unnecessary. Thus, *the steppes determine the character of labor and production and put on them the stamp of production in a family-community*.

The steppes put similar marks on the *character of the property and the family type* of the nomads. There is no reason for an appropriation of the land. A nomad family has to move as soon as grass in a given place is consumed, therefore "for the nomads it is more necessary to have a free passage and a free migration throughout the steppes than an exclusive right of ownership of limited portions of the land"¹⁶ "As the grass grows spontaneously and no labor is spent for its cultivation, it is natural that the land remains common property, private property appears only when land requires cultivation to yield the necessary products. The necessity of this work is the origin of the institution of private property"¹⁷ By determining the organization of work, the steppes determine the character of common property among the shepherds. Community of *Labor and Property*, in its turn, puts a stamp of community or communism on the *Family* of the steppes people. It is the patriarchal family with the father or the patriarch at its head and with all children except married daughters rallied around him. The patriarch exerts supreme power over all members of the family. Everything, except insignificant objects, is the common property of the family. In this way, *the type of patriarchal family has been produced on, and through the steppes*¹⁸.

The effects of such a patriarchal family on its young generation are definite. Since everything is in common since an individual is only a kind of "a cell" in the family community and the family acts as a whole in every kind of a transaction, it is natural that such a family organization suppresses the individual initiative of its children and incessantly trains them to rely not upon them-

¹⁶ DEMOLINS, *Comment la route crée le type social*, Librairie de Paris, Vol. I, pp 59 ff.

¹⁷ *Ibid.*, pp 59 ff.

¹⁸ *Ibid.*, p 60-63.

selves but on the family, and on traditions and on customs transmitted from generation to generation. The offspring of such a family are naturally conservative, their attention is turned to the past, not to the future, they are guided exclusively by the customs and habits of their fathers and forefathers and not by their own initiative.

The self sufficiency of the family in the steppes makes unnecessary any permanent aggregation or integration of families into a larger social body, political group or economic organization. Families of the steppes are situated side by side without any permanent cohesion or integration into a larger unit. Among the nomads of the steppes there does not exist any permanent state or government. The only larger form of aggregation is the grouping in the form of *caravans*, and this is very temporary. The caravan is a superfamily under the personal and temporary authority of the caravan leader or chief.¹⁹ This authority appears because of the necessity of a chief to guide the caravan, to keep order without which it is doomed to perish, and to establish good relations with the populations along the way.²⁰ Under such conditions the "caravan is an armed troop which has a chief and procures its own supplies." It may be turned into an army very easily by an increase of its power, an efficient chief and the presence of a country to be invaded. Hence, the great invasions of Attila, Genghis Khan, Tamerlane, and those of China by the nomadic Mongols and many others which originated in the steppes represented nothing more than the great caravans of the steppe nomads turned into an army. Formed from the whole people including all women and children, able to flee easily in case of defeat, and plundering the countries in their way, such caravans exhibited great power. But the same conditions of caravan organization explain why all empires established by such invaders have been unstable and shortlived. With the death of their talented leader, such empires quickly disintegrated because of a lack of any other basis for their integration.²¹

¹⁹ DEMOLINS *Comment la route crée le type social* Librairie de Paris Vol. I, Chap. III.

²⁰ *Ibid.* pp. 72-76.

²¹ DEMOLINS *Comment la route crée le type social*, Vol. I p. 80 ff.

Such in brief is the analysis and explanation of the social system of the steppe peoples. Beginning with *place* the author has shown consecutively how the steppes created this social type "Steppes determine the pastoral art practiced by its inhabitants, communism (*Communauté*) of labor and of property, the patriarchal family, the limited character of fabrication and of commerce, the character of arts, the public cult, public authorities and so on" ²² Each of these characteristics is conditioned by others and finally by the character of the steppes.

Through peaceful migration and invasion these steppe peoples spread throughout the world and at the same time spread the principal characteristics of their social system, especially the patriarchal type of family. One wave of these nomads moved to the north and reached the area of the *tundras*. Being unable to turn back they had to stay there under geographical conditions (*place*) quite different from those of the steppe ²³ (much colder climate, absence of horses, presence of reindeer, scarcity of food, fishing and some hunting as the only sources of existence, and so on) ²⁴ This different environment caused a considerable transformation in the social system of the steppe people now settled on the tundras. The Eskimos and the Lapps illustrate this. Their forefathers came from the steppes, but under new conditions they and their offspring had to make a decided change. Long ago a branch of the people of the tundras probably crossed Bering Straits and came to America. Here, according to the character of the area through which they had to pass and in which they had to stay, (the way of the Savannas, the way of the Rocky Mountains to the south, and the way of the lakes to the southeast) they were transformed again and finally formed the principal types of American Indians, the hunters of the prairies and the hunters of the forests with their typical social institutions and types of families. The conditions of the prairies with their bison shaped the organization of the new inhabitants into the clans of the hunters (the Indians of the prairies). The patriarchal type of family still survived, but it was somewhat weakened. Another

²² *Ibid.* p. 195

²³ DEMOLINS *Comment la route crée le type social*, Vol. I (See the causes of this, pp. 114 ff.)

²⁴ *Ibid.* (See the details, pp. 117 ff.)

type was produced by those who went and "settled" in the region of the Rocky Mountains (the Indians of the mountains). The third type was formed by those who principally inhabited the region of the Great Lakes (the Indians of the lakes region). Finally, a different and the most miserable type of society was formed by those who were driven to the forests of South America (South American Indians). Here, as well as in the forests of Central Africa, the conditions of forest life led to the dispersion of the large clans, the reformation into small groups, and to a substitution of the "unstable" family for the patriarchal type. Hunting in the forests caused a change from the large patriarchal family into a simple group composed of a hunter and his wife. The children at early maturity left their parents in order to procure their own means of subsistence because the forest conditions did not permit food for a large group of men living together. In this way a type of the "unstable" family was developed—a type without long history or any traditions, a type without any esteem of the young generation for the old people and the patriarch. Under such conditions it was impossible to inculcate into the young generation either community of property, or the conservative traditionalism of the patriarchal family. The forest hunting produced only isolated, savage, beast-like individuals. Such, in brief, is the origin of the "unstable" type of family. As the patriarchal type was originated in the Asiatic steppes, so the 'unstable' type was produced by the forests of South America and Africa.²⁰

Especially attention has been given by the school to tracing the origin, causes and history of the *particularist type of family* and of the *particularist type of society*. This work was done principally by Henri de Tourville. According to de Tourville, the formation of the particularist type of man, family, and society was as follows. A group of the patriarchal type, under the leadership of Odin,—a caravan leader and warrior,—started from the region of Don, in the southeastern part of present Russia, and moved to Scandinavia. Here the peculiar environment of the western part of Scandinavia gradually transformed them and their descendants from the patriarchal into the particularist type.

* DEMOLINS, *Comment la route crée le type social*, Vol I, Chap IV

The fiords and the scarcity of fertile land in Norway forced them to turn to fishing as the principal method of obtaining their means of subsistence. As a means of transportation in the fiords boats were developed which could carry husband and wife and perhaps a few of the children. Having settled at a fiord, such a family had "the narrow and scattered pieces of land suitable for cultivation, the perpendicular banks favorable to fishing, and sheltered waters favorable to navigation in small boats"²⁶. Such conditions did not permit the children of these families to stay with their parents and thus to form the large patriarchal type. A large family could not obtain the necessary means of subsistence at the same place. This forced the adult children to separate from their parents and to go by boat to another place and to live independently. The patriarchal family (and other social institutions of the patriarchal type) were broken down under the pressure of the specific geographical environment of the western slope of Scandinavia. "Each adult son was obliged to look for some habitable nook in the recesses of that rocky land, and to accustom himself to do without the help which is afforded by the association of individuals, and to depend on that self-help which is acquired by the personal development of an estate"²⁷. In this way the environment developed a self reliance, initiative, and independence,—the characteristics of the particularist type of men,—among the fishers and cultivators of Western Scandinavia. Thus was shaped a new type of men, and a new, particularist type of family, "founded on the ability of the individual to create a home for himself"²⁸.

As soon as this most important revolution in the type of men and of family was accomplished, many modifications took place in the sphere of public life and social institutions. First "public life was abolished, private life, which was all sufficient to itself, triumphed absolutely." "The small boat and seacoast fishing enabled each individual emigrant to live alone, to do without a community, even without a neighbor and a master." Further it

²⁶ DE TOURVILLE H. *The Growth of Modern Nations, A History of the Particularist Form of Society* p. 49 N. Y., 1907 see there a detailed analysis of the geographical conditions of Scandinavia and the history of the migration of Odin and the Odinsids Chaps I II III

²⁷ *Ibid*, pp. 68-69 see all of Chap. IV

²⁸ *Ibid*, p. 70

led to the substitution of direct ownership of the land (small farms or estates) for the system of the patriarchal community.²⁹ Association with other men did not disappear, but, in place of the enforced association of the patriarchal community, free social organization was substituted and "only where it was absolutely necessary" This led to the establishment of contractual associations, to the elections of leaders or public authorities, to independence and to self-government, the conspicuous characteristics of the particularist society. Different from the society with an unstable family (created in the forests), the fishermen and farmers of Scandinavia created associations. Different from the patriarchal type of society, their associations became voluntary, based entirely on covenant and agreement, and in addition they were created only when and where they were necessary and desirable. In this way the particularist type of family created self governing social and political bodies, with elected authorities, restricted in power, instead of the forced, autocratic and traditionalist authorities of a patriarchal society. In brief, the particularist type of family led to what is now styled the real democratic and free society.³⁰ Thus, Scandinavia was that "world laboratory where and only where the particularist type of men, family and society was shaped and created"³¹ Such was its origin.

After he has developed his thesis thus far, de Tourville further traces the diffusion and historical destinies of the particularist type of men and of social organization. Later some members of this particularist society migrated and settled as agriculturists on the plains of Saxony. They did not migrate in mass but purely as individuals. On these Saxon plains they modified their social organization somewhat, but the new organization was still primarily of the particularist type.³² From this center in the plains of Saxony, the particularist type of society spread throughout all of Europe. Some individuals known as the "Franks" migrated to the west. At first they acted as agents and officials of the Roman emperors, and of the Merovingian and Carolingian

²⁹ *Ibid.*, pp 71-72

³⁰ *Ibid.*, pp 74 ff

³¹ *Ibid.*, pp 38-39

³² *Ibid.*, Chap V

kings. However, they soon acquired land and estates, settled down and began to fight for their independence and for their particularist principles. In this struggle they were successful in coping with the growing autocracy of the Merovingian and Carolingian kings and warriors and obtained their independence and immunity. In addition they helped to liberate other social classes from the interference of the monarchical authorities, and undermined the regime of military and patriarchal organization introduced by Rome and later maintained by the Merovingians and the Carolingians. What is known as feudalism and its victory in the ninth century was in essence nothing but the struggle and the victory of the particularist over the patriarchal type of men. The particularist Saxons and Franks defeated their antagonists who were headed by the Merovingians and Carolingians.³³ Thus we have a very original and positive interpretation of feudalism. The valuable achievements of feudalism in its period of growth, according to de Tourville, were a great decrease of militarism and warfare, the emancipation of the serfs, the establishment and expansion of liberty and self government, a great progress in agriculture, a harmony and solidarity of the social classes, an extraordinary development of free association, an increase of voluntary enterprises and so on.³⁴ Later, owing to an unfortunate combination of historical conditions, the particularist type of men, family, and society were overpowered in Europe and replaced partly by the patriarchal and partly by the unstable types.³⁵ Another stream of the particularist migrants from the Saxon plain and Scandinavia went to England. Here they settled and step by step established themselves in spite of many obstacles. The particularist settlers gave the English social organization particularist characteristics. In a rather peaceful way they predominated over the Celts, and later on, in succession, over the Angles, the Danes, and the Norman conquerors. In this way the Saxons in England triumphed over all other populations of the British Isles. They shaped English society according to the particularist tradition and created its institutions and

³³ *Ibid.*, Chaps VIII to XIII

³⁴ *Ibid.*, Chap XII

³⁵ *Ibid.* (See analysis in Chap XVIII and subsequent)

history Still later, a part of them emigrated from England to America, Australia, New Zealand and elsewhere and created these other great particularist societies³⁶ Such in brief is the origin, development, expansion, and the history of the particularist type of family and society

In a similar way the members of this school have studied, analyzed and explained the factors, the forces, the formation, and the underlying characteristics of other types of societies and social organizations³⁷

The above gives an idea how the followers of the Le Play school apply the *Nomenclature* for an analysis of a social system, how they correlate one class of social phenomena with another; and how they classify different types of societies, families and institutions They never deal with abstractions or pure speculation With the *Nomenclature* as a guide, they plunge into the dark and incomprehensible sea of history and methodically, patiently, and carefully try to unravel its riddles One who reads their works may disagree with their opinions, but he never feels that the investigators were amusing themselves with mere verbosity A pulsation of intensive, systematic and original, vivid and interesting scientific thought is felt on every page of the best works of the school

4. CONTRIBUTIONS OF THE SCHOOL TO SOCIAL SCIENCE

We can now enumerate briefly the principal contributions of this school to social science. The first contribution is the method of the school It consists in viewing the family as the social unit, in a quantitative approach to the study of social phenomena, and in the creation of the *Nomenclature* as a guide for sociological analysis The second contribution consists of the family monographs and of the studies of family budgets started by Le Play and his followers The third contribution is represented by generalizations concerning the influence of geographic environment

³⁶ *Ibid.*, Chapters XIII-XVII, XXVIII-XXX. DEMOLINS, *Anglo-Saxon Superstition To What Is It Due?*, pp. 1-xi, London, 1898

³⁷ See DEMOLINS, *Comment la route crée le type social*, Vols I, II, *passim*, DEMOLINS, *Les Français d'aujourd'hui*, Vols I, II and all volumes of *La science sociale* where many monographs have been published see also the bibliography given in DEMOLINS, *Comment la route crée le type social*

on various sides of social life and institutions. It is certain (see further, the Geographical School) that this influence was known and studied long before Le Play and his school. The Le Play school, for its part, increased our knowledge in this field, and showed very clearly the influence, the correlation, and the avenues of influence of *place* on social processes and organization. The general standpoint of the school in this respect is well illustrated by the following quotation:

On this planet there exists an infinite variety of populations, what cause created this variety? The common answer is *race*. But the racial factor does not explain anything because we have, as yet, to explain what produces racial variety itself. Race is not the cause but the result. The primary and decisive cause of the diversity of peoples and races is *the road which has been followed by the peoples*. It is the road (environment) which created race and social type. It has not been an indifferent matter for a people which road they followed: that of the Grand Asiatic Steppes or of the Tundras of Siberia or the American Savannas or African Forests (or the Arabian Deserts and so on). Unconsciously and fatally these roads fashioned either the Tartar Mongol type, Eskimos, Lapps, the Red Skinned or the Negro. In Europe the Scandinavian type, the Anglo Saxon, the French, the German, the Greek, the Italian, and the Spanish are also the result of the roads through which their ancestors passed before arrival at the present habitat. Modify one or another of these roads and through that you will change the social type and race.³⁸

This led the school to formulate many correlations between *place* and different characteristics of social organization. Among them the most important are:

- A. Correlations between *place* and the forms of labor such as
 - Steppe and shepherdship
 - Tundras and fishing and hunting
 - Sea coast and fishing
 - Forest and hunting
 - Plain and agriculture
- B. Correlations between *place* and the forms of Property such as
 - Steppe and common property of the family

³⁸ DEMOLINS, *Comment la route crée le type social*. Vol. I. Preface.

Tundras and common property of the family
 Fiords and individual property

C Correlations between *place* and the Type of Family, such as.

Steppe and patriarchal family
 Tundras and weakened patriarchal family
 Forest and unstable family
 Fiords and particularist family

D Correlations between *place* and Superfamily Institutions and Associations

Steppe and the caravans and invasions
 Fiords and contractual associations, and so on

E Correlations between *place* and many social processes and phenomena, such as migration, forms of arts and religion, wars, and so on³⁹

In general the school has contributed to the study of the influence of geographical environment on social type probably no less than any other group of social geographers

The fourth contribution of the school consists in an elucidation of the interdependence of various sides of a social type as indicated in the *Nomenclature*. Examples are the correlations established between the forms of Labor and that of Property,⁴⁰ between the forms of Property and the types of Family, between the Family types and the types of Superfamily organization, and so on

The fifth, and probably the most important contribution of the school, consists in its classification of the fundamental types of the family, in an elucidation of their origin, in the description of the social functions of the family, and finally in an exhibition

³⁹ See the correlations in the above quoted works of Le Play, de Tourville, Demolins, de Rousiers, Pinot

⁴⁰ Examples Private property grows parallel to an increase of labor necessary for production or cultivation of the necessities. It is almost absent among the pastoral nomads, who live on through a simple collection of the gifts of nature and do not invest any special labor for cultivation of the soil. A family occupies a place only for a short moment and, after a consumption of its grass, moves to a new one. Among the semi nomad people like Bashkirs, who begin to cultivate land, "the duration of labor increases. This is accompanied by prolongation of the appropriation of the land and by a progress of the institution of private property." Later on, among more complex types of society, it is necessary to invest a greater and greater amount of labor to get the means of subsistence, the simple collection of the gifts of nature is more and more superseded by the necessity of their fabrication. Correspondingly, the institution of individual property grows more and more. See DEMOLINS, *Comment*, Vol II, pp 21-28

of the family's enormous importance for the whole social organization and historical destiny of a group

I have already outlined the origin and the characteristics of the three fundamental types of family. Let us discuss in greater detail other family problems. According to the school, the principal social functions of the family are the production of human beings, the securing of means of subsistence for its members, and especially the social and economic education of the young generation. These functions have been performed by all types of family regardless of its concrete form. In this sense the family has been and is the primary, the most important, and the most effective social institution.⁴¹ "Every day society is submitted to a terrible invasion: within it a multitude of small barbarians are born. They would quickly overthrow the whole social order and all the institutions of society, if they were not well disciplined and educated. This education is made absolutely necessary and difficult by the fact that a new-born child is un-social." He does not know the laws of society and the necessary forms of conduct which make social life possible. He does not inherit such tendencies. He even refuses to follow them spontaneously. He does not know how to get the means of subsistence. He does not wish to enter any social group and to conform to its rules. Hence, the necessity for his education, training, and instruction without which he can neither adapt himself to social life nor help make social life and the continuity of the social group possible. "This education is the fundamental function of the Family. No other institution can substitute for it in this respect."⁴²

The family has been the first and the most important factory in which biological human beings have been transformed into social individuals. It is the sculptor which shapes racial traits out of "human clay" and gives this clay its most decisive and desirable characteristics. The family education determines the type of social organization.⁴³

⁴¹ See PINOT, R., *op. cit.*, *passim*.

⁴² *Ibid.*, p. 58.

⁴³ Compare COOLEY, CH. H., *Social Organisation*, Chap. III. See further chapter about Sociological School and recent studies of the correlations between family characteristics and the traits of its members.

"Every family brings up its children according to the conditions and necessities of the place and the group among which it exists" According to the character of education which the family gives to its young generation, it is possible to distinguish three or four fundamental types of families. They are as follows.

The Patriarchal Family—"It moulds the young generation so that the children remain together in peace under the authority of the head of the family, causes them to sacrifice all their individual efforts for the Family community and to depend entirely on this family organization. Within it the individual is annihilated and completely absorbed by the community" ⁴⁴ "This type of family is common among the less progressive populations of the East. There children do not rely on themselves for their establishment, but on the family community, which will keep them or welcome them back if per chance they have left home and failed. Under these conditions little personal instruction is needed, and only a minimum amount of instruction is given the family, sometimes helped by the priest, is sufficient to impart it" ⁴⁵ The societies with this type of family are conservative, stagnant, and retarded.

A modification of this type of family is the *Quasi Patriarchal* type or stock family (*fausse famille souche*) whose members sometimes may go away, but permanently keep their contact with the paternal family, send it all their money, and sacrifice everything for it. They even become celibates if it is necessary and sooner or later usually return back to it. Individual initiative is developed a little more in such a family than in a pure patriarchal type, nevertheless, in essence it has all the characteristics of the patriarchal type ⁴⁶

The second principal type is the *unstable family*. "It does not fit its young generation for anything special, neither does it unfit them for anything general. It brings up its children without imparting respect for authority and traditions, as does the patriarchal family, and at the same time, it does not fit them for originality, or for the independent production of new ideas, as does the particularist type of family. Within such a family, the quality of subordination, as well as of initiative, are equally

⁴⁴ PINOT, *op cit.* 63

⁴⁵ DEMOLINS *Anglo Saxon Superiority*, p. 77

⁴⁶ PINOT *op cit.* p. 63

absent, and the individual who in reality has not received any education or training and who is not capable of doing anything, becomes a prey of States and Governments" ⁴⁷ The societies which have this type of family represent "A Communistic State Formation" There the large public community takes the place of the dissolved family community, here the young people rely principally on the State for establishment in life, such as through the many appointments in the army or the different services which the State distributes Most of the nations of Western Europe, notably France and Germany, belong to this type To obtain these appointments, examinations have to be passed In order to keep away the bulk of the applicants, the examinations are made stiffer and more difficult" In such a society, the official bureaucracy rules, the interference of the Government is great, and its machinery is centralized Prussian military and bureaucratic society and, its natural development, the State socialistic organization, is the natural form of a society with such a type of a family ⁴⁸

The third type is the *Particularist Family* "It enables its young people to manage their own business or affairs independently and to establish themselves in a definite field of activity It develops a great deal of individual initiative Thanks to it, the value of the individual is highly appreciated The individual is the organizer and master of all private and public groupings in this type of a society Here we have the triumph of the individual over the state" ⁴⁹ The Scandinavian and the English-speaking nations are the best examples of this type of family and society Here 'the individual prevails over the community, private life over public life, and in consequence, the useful profession over the liberal and administrative professions" Here the individual relies neither on the family nor on the state for his establishment The state disposes but few appointments, because public powers are not centralized and only a very few officials are employed Here the individual relies principally on his own energy and resources to succeed in an independent career The chief aim of education (in the family and outside of it) in such a

⁴⁷ PINOT, *op cit*, p 63

⁴⁸ DEMOLINS *op cit*, p 77.

⁴⁹ PINOT, p 63

state of society, must therefore be to develop these individual qualities and to form practical men⁵⁰ Demolins and de Rousiers have shown in detail the differences in training and education of the young people in the family and the schools of Germany and France as examples of a state communistic formation with an unstable family at its bottom, and in the family and the schools of England and America as examples of particularist societies with the particularist type of family at its bottom⁵¹ In a particularist family (of the Anglo-Saxon and the Scandinavian type) "the parents do not consider their children as property, nor that the children are a mere continuation of themselves They have no greater anxiety than to hasten the emancipation of their children They treat their children from infancy as mature persons Because of this treatment they develop responsible and original personalities Parents educate their children to meet future necessities They also endeavour to increase, as much as possible, the strength, energy, and physical development of their children The children are initiated very early into the practice of material, everyday acts As a rule, parents have their boys taught some manual trade There is little display of parental authority The boys know that their parents will not be responsible for their situation in life" As a result out of such a family come strong and energetic individuals who know what they want, are imbued with corresponding knowledge and experience, and are accustomed to have their rights and to take their responsibilities⁵² The system of education outside of the family in a particularist society is only a continuation of the principles of the family education It is permeated with the same characteristics and is quite different from the school system in the "Communistic State Type of Societies" (in Germany and France)⁵³

As a result of such an organization, "young men, made physically strong, accustomed to material facts, trained to rely on themselves and to look upon life as a battle, bring a superabundance of youthful strength to cope with the difficulties of exist-

⁵⁰ DEMOLINS, *ibid*, pp XIII, 78-79

⁵¹ See DEMOLINS, *Anglo-Saxon Superiority*, *passim*, DE ROUSIERS, *La Vie Américaine*, *passim* DE TOURVILLE, *op cit*, *passim*

⁵² DEMOLINS, pp 95 ff

⁵³ See *ibid*, Chaps I-III

ence, they enjoy these difficulties expect them and triumph over them' Here lies the secret of Anglo-Saxon superiority and power Here is the source of the miracles which have been performed by this people

Anglo Saxon superiority! Although we do not all acknowledge it we all have to bear it and we all dread it We cannot go one step in the world without coming across *L. Anglais* The Anglo Saxon has supplanted us (the French) in North America in India and in Egypt He rules America by Canada and the United States Africa by Egypt and the Cape Asia by India and Burmah Austral Asia by Australia and New Zealand Europe and the whole world by his trade and industries and by his policy The Anglo Saxon is now at the head of the most active the most progressive and the most overflowing civilization (*Ibid* pp xxvii xxx) And now compare and decide and judge I have tried to show the hidden springs which enable that race to threaten and invade the older and more decrepit societies (p 103)

The above shows the correlation which exists between the type of family and the whole social organization and its historical destinies As we have seen the Le Play school has shown how each of these types of family has originated in what kind of environment and under what conditions The above also gives an idea of the tremendous influence of the family on the whole social organization and institutions Various leaders of the school have formulated many other correlations which cannot be given here³⁴

As yet there has been no sociological school which shows the functions the classification and the social importance of the family as clearly as the Le Play school with the exception of Confucius and the Confucianist school in China This school may be paralleled with the Le Play school in an understanding of the decisive influence of the family institution But Confucianism pleaded for the patriarchal family while the Le Play school pleads for the particularist type

The sixth contribution of the school consists in a series of studies of an applied character in which it has tried to indicate

³⁴ See the quoted works One of these correlations is that real democracy and self-government are possible only among the people of the particularist type with a particularist family

many measures for the practical reconstruction of society. Among these measures some have a specific character while some others are general and applicable to all societies at all times. The above theory of the particularist type of family may serve as an example of the specific suggestions of the school. In it the school sensed the highest of family and of social organization, and as a result tried to propagate this form throughout the world, especially in France. To achieve this purpose it endeavored to remodel the unstable French family into the particularist type and to change the system of French education. With this intention, Demolins and others opened their own school, *L'École des Roches*, in which they organized the curriculum according to particularist principles.⁵⁵ On the other hand, they severely criticized, and with reason, the existing system of school education in France and Germany. Conforming to the same particularist ideal, they interpreted socialism as a mere modification of the patriarchal social type with all its negative traits but lacking its positive qualities.⁵⁶ For the same reason they opposed an expansion of state interference at the cost of voluntary private activity and all measures which lead to a decrease of individual initiative and independence. In this respect their position is similar to that of H. Spencer. On the other hand, conforming to the same particularist ideal, they decisively opposed any artificial or hereditary aristocracy. They demanded that all positions be opened to free competition. They severely criticized absentee-owners of land, saying that if landlords had lost their influence it was due to the fact that they no longer performed their social duties.

Le Play's *Universal Constitution of Mankind* is an example of the school's general applied sociology. In this work he endeavored to discover inductively the conditions necessary for a prosperous existence of any society. He summed up the principles which he had previously developed in the works *La réforme sociale en France* and *L'organisation du travail*. Here again Le Play reminds us of Confucius. Both were conservative. Neither

⁵⁵ See DEMOLINS, *L'éducation nouvelle*. Librairie de Paris, year is not indicated. *Anglo-Saxon Superiority*. Part I.

⁵⁶ See DEMOLINS, *Anglo-Saxon Superiority*, pp. 236-277. *Le socialisme devant la science sociale*. These works are one of the most original and thoughtful interpretations of socialism.

pretended to discover new principles but assumed that proper principles had already been discovered through the past experience of peoples and generations "I am only a transmitter, not a maker, believing in and loving the ancient," said Confucius. Similarly, Le Play said, "Concerning the fundamental principles of social science there is nothing to be invented, in this science the new is but what has been forgotten" ⁵⁷ He stressed the fact that neither his method of observation, nor his theories and principles, nor finally his applied sociology were discovered by him, they had already existed in the social sciences of long ago. This modesty is really characteristic of Le Play. In regard to the conditions necessary for the successful existence of a society he said

Since the revelation of the Ten Commandments and their sublime interpretation by Christ the human mind has not discovered more useful principles. Nations which practice these principles are progressing and those which are not declining. Solution of the social problem does not require an invention of new principles ⁵⁸ An innumerable number of the thinkers who have analyzed the virtues and vices of man did not add anything new to the decalogues of Moses and to the teachings of Christ ⁵⁹

Correspondingly his system of social constitution is simple and definite. Among the fundamental conditions necessary for the prosperous existence of any society are a sincere belief in God and religion, the existence of the authority of the parents, the existence of a sovereign government and of loyalty toward it, the firm institution of private property, the practice of solidarity and honesty in the interrelations of individuals and classes, mutual help and coöperation and other principles found in the majority of ethical and religious systems. In his works already mentioned ⁶⁰ he analyzed each of these conditions, and showed why they were necessary for the existence of a society and what should be the details of organization of the religion, of the family, of labor, of private property, of government and of other social

⁵⁷ See DE CURZON, *op cit*, pp 3-5, 21-23 44, 54 ff

⁵⁸ LE PLAY, *La paix sociale*, p 31

⁵⁹ LE PLAY, *La réforme sociale*, Vol I, p 12 1866

⁶⁰ See *Constitution essentielle du passivisme, La réforme sociale en France, passivisme*, see also DE CURZON, *op cit*, *passivisme*

institutions On the basis of observation, he found that the above conditions had been present in all societies in the periods of their well being, prosperity and happiness, and were absent in the periods of decay, demoralization and disintegration It is clear that his plan of social reconstruction is opposed to those which are in vogue at the present time Instead of advocating class hatred, Le Play pleaded for class solidarity, instead of atheism and materialism, religion, instead of revolution, reform, instead of egotism, altruism, instead of profit, sacrifice, instead of rights and privileges, he stressed more duty, instead of destruction of the existing institutions, their slow and careful remodeling Such in brief are the method, the principles, the contributions and the reforms offered by Le Play and his continuators

5 CRITICISM AND APPRECIATION

I have already given my appreciation of the school Le Play deserves to be put on the level with such masters of social science as Comte and Spencer ⁶¹ The aggregate contribution to sociology of the Le Play school is scarcely less than that of any other contemporary school of sociology ⁶²

However, side by side with its positive qualities it has several serious shortcomings In the first place, the *Nomenclature* and the principles of the school can by no means embrace and solve all problems of sociology They cover only a part of the field For instance, they do not touch and do not explain such fundamental social processes as wars, enrichment and impoverishment, appearance and disintegration of religion, growth or decrease of population, and social antagonisms Equally they do not touch and do not explain many problems of social organization In brief, the system of the Le Play school covers only a part and not the whole of the field of sociology

⁶¹ S H Swinny has already expressed the same idea See SWINNY, S H, "Sociology Its Successes and Its Failures," *The Sociological Review*, Vol. XI, No 1, 1919, p 3, see also SWINNY, "The Sociological Schools of Comte and Le Play," *ibid*, Vol XIII, No 2, April, 1921

⁶² It is curious to note the opinion of P Barth, who in the last edition of his *Die Philosophie der Geschichte als Soziologie* styles Le Play as a romantic and finds his system a mere theory of "social economics from the standpoint of family-law" BARTH, *op cit*, pp 727-732, Leipzig, 1922 From a speculative social philosopher, like Barth, such an appreciation is to be expected.

In the second place, though the school is free from a narrow-minded dogmatism, nevertheless, some of its statements appear to be somewhat one sided. Take, for example, the statement of Demolins concerning the factors of geographical environment and race. If it is futile to try to explain varieties of peoples and social types through the racial factor only and to ignore environment agencies completely, it is equally futile to make the opposite mistake as the Le Play school partially does. The factor of race and heredity is almost completely ignored by the school. Without it we cannot explain why, for instance, some of the individuals of the steppes of Central Asia started in one direction, some others, another, and the rest remained there. How can we account for such differences through *place* only? Further, the appearance of the leaders of the caravans as well as the other forms of social differentiation and stratification, are also unaccountable through the factor of environment alone because the leaders and the led, the influential and the non influential individuals were in the same environment. More than that. We read in Demolins book

When we study the origin of culture we are first struck by the appearance of two categories of family, on the one hand are the foreseeing families, capable of working in view of remote effects, on the other hand there are families and individuals who are capable of acting only under the pressure of immediate necessity or in view of immediate satisfaction. In this way there are formed two distinct classes the superior and the inferior. Thus appears inequality among men.⁶³

It is evident that such social differentiation cannot be accounted for by *place* because all of these families lived in the same geographical conditions. Demolins does not try at all to explain such a fact. It is highly probable this differentiation is due to inherited and racial differences of individuals. So much concerning this one sidedness.⁶⁴ To the credit of the school, however, it must be said that unlike many social geographers it does

⁶³ DEMOLINS *Comment la route* Vol II, pp 12-13

⁶⁴ See other 'geographical fallacies of the school in the chapter about the Geographical School in sociology. The criticism of the one-sided 'geographism' given there also concerns the Le Play school.

not pretend to make the factor of geographical environment omnipotent it recognizes that among more complex societies the direct influence of geographic environment tends to decrease and is superseded by other factors⁶⁵

The next shortcoming of the school seems to consist in an inadequate geographic explanation of the origin of different types of family. Its theory may contain a considerable portion of truth. But is it enough to say that the patriarchal family was produced by steppes the unstable by forests the particularist by the fiords of Western Scandinavia? Let us take for example the theory of the origin of the particularist family in the fiords of Scandinavia. According to the school there and only there the particularist type of family originated. Responsible geographical factors for such a production were those conditions which forced the people of Scandinavia to live in small separate families and to permit their children to go away as soon as they matured. However such geographical circumstances existed in many other places. Also the forest conditions which according to the school produced the unstable family were similar in some respects they forced the people to live in small separate families and to permit the adult children to leave the parental family. Why did these conditions not produce the particularist type of family? Therefore the explanation of the origin of the particularist type through the geographical conditions of the fiords is not sufficient and is not quite convincing. Also the statement that this type was produced only in the fiords sounds like an exclusively one sided statement which is not sufficiently corroborated. This insufficiency is still greater when we are told that the descendants of Odin who lived in the same fiords in some mysterious way were not transformed into the particularist type but preserved the militant type of warriors and for many centuries continued to supply military leaders for the Danes the Normans the Franks the Saxons the Goths and so on. If the geographical conditions of the fiords were responsible for the transformation of the patriarchal type into the particularist then the descendants of Odin should have undergone the same transformation. Since they did not change but remained what they

⁶⁵ See DEMOLINS *Comment la route* Vol I pp 196-197

were before coming to the fiords, then the geographical factors evidently are not enough to explain the transformation. It may be that the origin of the particularist type was due not only to the fiords but to other factors as well. The same may be said of the origin of other types of family and societies. Evidently this theory of the school is still nothing but a tentative hypothesis.

Even if we grant that the environment theory of the Le Play school⁶⁶ is satisfactory in regard to the origin of the types of family and man, we have a new problem concerning the destinies of each type. Are the acquired characteristics of each type of men biologically inherited or not? The school is silent on this point. Meanwhile whether or not we admit the theory of an inheritance or of a non inheritance of such traits, in both cases the theories of the school are unsatisfactory. If the acquired traits of men of each type are not inherited, then it is incomprehensible, why, for instance, in England, in spite of the identity of the environment, the descendants of the Saxons have maintained throughout centuries the particularist characteristics, while the descendants of the Celts and the Danes and the Normans, who lived in the same place, did not acquire the same particularist characteristics. (See de Tourville, Chaps XIII, XVII.) If the decisive factor is the environment and the corresponding acquired traits are not inherited, then all who have stayed in the same geographical environment for many generations should have acquired similar traits, regardless of the race. And yet, de Tourville, as well as Demolins, stresses that up to this time in England the particularist type is represented only by the descendants of the Saxons and that the Celtic and other elements in the English population do not belong to this type at all. It is clear that such a fact could not be accounted for or reconciled with the statement that "the road creates a social type." If the corresponding traits are inherited, then how is it possible that "the inherited patriarchal type" could be transformed into the particularist one, and how is it possible that the particularist type of the early Franks was transformed into the "state communistic type" while the descendants of the Anglo-Saxons did not undergo such a change? In the writings of the

⁶⁶ See DE TOURVILLE, *op cit*, *passim*

school we do not find any answer to these questions. They avoid it. And therefore their theory does not and cannot dissipate the mystery of the origin and development of each of their principal types.

The next weak point is the appreciation of different types and their role. We have seen that the particularist type is destined to be powerful and dominating and that in it lies the secret of the expansion of the Anglo Saxon domination. If this is so then why was this type conquered in Europe? Why could it not keep the dominating position which according to the school it held during the ninth and tenth centuries? Why was it overpowered by the state communist type? This diversity of the *historical destinies of the particularist type in Europe and in Scandinavia or in England* is not unveiled by the school at all. It forces us to an inference that the particularist type is not necessarily always the conqueror. The school probably somewhat overestimates the power and the strength of this type and underestimates the positive qualities of other types. This is the more probable because history shows that great and durable empires and brilliant civilizations have been created by the peoples of ancient Egypt Babylonia Assyria Greece Rome China India and ancient Peru who were conspicuously the peoples of a state communist or the patriarchal type. And the history of France or Germany for the last century does not show that the people of a state communist type are incapable either of creating the highest forms of civilization or of being powerful in the struggle for existence. Take further the Jewish people. Their family organization still has many characteristics of the patriarchal type. And yet these people display an extraordinary vitality and energy.

Further for the above reasons it is also possible to question whether the school does not exaggerate the influence of family organization on the types of men social institutions and historical destinies of a society. It seems to be probable that there is some exaggeration in the statements of the school. It has not demonstrated that men of each of its types are necessarily the product of family education only and are not due to racial or hereditary factors. The school's statements do not give definite corroboration of its pretensions and still remain on the level of

a probable but not proved hypothesis. If this is so then the very heart of the theory of the school that Anglo Saxon superiority is due to the particularist type of the Anglo Saxon family, may also be questioned. With the same probability one may contend that it is due to the racial factor and that the particularist type itself is nothing but a manifestation of corresponding innate qualities of individuals or groups.

Thus we come to the conclusion that the theory of the school contains only a part of the truth and does not sustain all the sweeping generalizations advanced. Many of its hypotheses still remain only guesses. Finally one may partially agree with the system of applied sociology depicted by the school. But again it is not sufficient granting that the Ten Commandments include all the essential conditions necessary for the well being of a society, we see that they are not always obeyed and are often transgressed. At the present moment we see that the existing religion is weakening and the attacks against property are increasing. Under such conditions it is not sufficient to indicate the Commandments in order to create a real applied sociology. Is it not necessary to find some means of making these principles effective? Is it not necessary to invent some measures which will make people follow these Commandments? By this I want to say that the applied program of the school is not sufficient and does not remove the necessity for discovering scientific measures which, at least, would make the Commandments efficient and effective.

Such in brief are the principal shortcomings of the school. They may be summed up as follows. First the system and the program of the school do not cover the whole field of social phenomena and social problems, second the school underestimates the factor of heredity and race and overestimates the factor of geographical environment and third many problems analyzed by the school, among them the origin of the types of family and the correlation of the types with the social system and historical destinies of a corresponding society, are not quite sufficiently explained. Finally, the applied program is ineffective.

These shortcomings of the school should not prevent us from recognizing its great contributions, its scientific character, its

originality, and its stimulating influence. At the present moment when the particularist type of family and society is undergoing a crisis and is menaced by another especially the state communist type, the works of the school are especially valuable from the theoretical, as well as from the practical standpoint.

CHAPTER III

GEOGRAPHICAL SCHOOL

I PREDECESSORS

ALMOST since the beginning of man's history it has been known that the characteristics, behavior, social organization, social processes, and historical destinies of a society depend upon the geographical environment. In attempting to write the history of the geographical school, one's difficulty consists not so much in indicating the thinkers who have pointed out the influence of the geographical environment as it does in indicating those who have not mentioned it. Lord Kame in 1788 wrote about 'the endless number of writers who ascribe supreme efficacy to climate'¹. The most ancient records of the thought of the East, which have reached us, contain several statements of this kind. The ancient astrological beliefs in their essence are nothing but an embodiment of the idea that man's destinies are ruled by stars and by other geographical conditions. The people's proverbs and "weather lore" of the past are permeated by the same idea. They contain many statements concerning the influence of various geographical conditions on physical and psychical traits of men, and on social and historical events. Hundreds of individual thinkers, whose names and ideas are preserved in history, have indicated in some form this or that effect of geographical factors. The thinkers of ancient India and Persia, the priests and the physicians of ancient Egypt, the astrologers of different countries, the Jewish prophets, Confucius, Lao Tse, Mencius and other sages of ancient China, Hippocrates, Plato, Aristotle, Thucydides, Xenophon, Herodotus, Strabo, Polybius, Eratosthenes, Varro, Vitruvius, Vegetius, Paul the Deacon, Servius, Cicero, Florus, Sallustius, Lucretius, Seneca, and almost all the prominent philosophers, historians, poets, and writers of ancient Greece and Rome, many of the Church Fathers, like St. Augustine, and Tertullian, many

¹ See LORD KAME, *Sketches of the History of Man*, 4 vols., 1788

medieval thinkers, like Giovanni Villani, St Thomas Aquinas, Michelangelo, Machiavelli, Ibn Khaldun and Jean Bodin, all these and many others have mentioned the conditioning rôle of various geographical factors. Later on, the effects of geographical agencies were stressed by Richard Mead, John Arbuthnot, Bernhardus Varenius, Sir John Chardin, J B Vico, Lord Kame, W Temple, Lenglet du Fresnoy, Turgot, Cuvier, Herder, and Montesquieu. In the nineteenth and the twentieth centuries a great multitude of historians, social philosophers, economists, geographers, political scientists, sociologists, anthropologists and ethnographers, biologists and men of medical science made many contributions in this field. The names of Lamareck, Karl Ritter, Arnold Henry Guyot, Johann Georg Kohl, Alexander von Humboldt, K E von Baer, Oscar Peschel, H T Buckle, F Le Play, H de Tourville, E Demolin, L Metchnikoff, P Lavrov, Mackinder, A Kirchoff, F Ratzel, Ch. Comte, P Mougeolle, A Matteuzzi, E Reclus, and finally, the names of P Vidal de la Blache, Jean Bruhnes, C Vallaux, E Huntington, E G Dexter, E Ch. Semple, Morcelli, Lehman, Shyten, H L Moore, and Beveridge, are a very few representatives of a great multitude of people who have tried to emphasize various effects of geographical conditions on man's behavior and psychology, and on social organization, social processes and the historical destinies of a group.²

As a result of the work of this multitude of authors there scarcely is any physical or psychical trait in man, any characteristic in the social organization of a group, any social process or historical event, which has not been accounted for through geographical factors by this or that partizan of this school. Distribution of the population on the surface of the earth, the density of population, racial differences, the character of economic, polit

² See the history of the geographical school in the works KOLLER, A. H., *The Theory of Environment*, The Collegiate Press, 1918, THOMAS, F., *The Environmental Basis of Society*, 1925 BARNES, H. E., *The New History and the Social Studies*, Chap II, N Y 1925 BARTH P., *Die Philosophie der Geschichte als Soziologie*, 1922, pp 544-555 see the literature and the references in VALLAUX, C., *Le mer Paris*, 1908, appendix "Bibliographie." All these and many similar works, however, are far from being exhaustive. They are incomplete even in regard to the thinkers of the Western countries and they completely ignore the Eastern thinkers and writers of the present, as well as of the past. The best first-hand source, for theories of the ancient East, is the series of fifty volumes of *"The Sacred Books of the East"* published under the editorship of F M Muller.

ical, and social organization, the progress and decay of nations, the character of religious ideas and beliefs, the forms of the family and of marriage, health, fertility, intelligence, crimes, suicide, cultural achievements, the number of men of genius, the traits of literature, poetry, and civilization, the movement of economic and social life, in brief, almost all social phenomena have been attributed to geographical influences. At the beginning of a study of these theories one is impressed by their brilliancy and originality, continuing the study one is perplexed and bewildered by their contradiction and vagueness, and finally he is lost in the sea of these theories not knowing what in them is valid, and what is wrong or doubtful. This explains why the primary need in this field at the present moment consists not so much in a formulation of a new geographical theory or of a new "correlation" between geographical factors and social phenomena as in a most rigorous analysis and shifting of what is valid and what is childish in these numerous hypotheses.

Such a shifting is the purpose of this chapter. The lack of space does not permit me to make the shifting quite exhaustive. For this reason I have to omit all purely speculative "geographical theories" and concentrate my attention only on those which are factual and more mature from the scientific point of view. The results of their scrutiny, however, may be applied, with still greater reasons, to all the less elaborated, the less scientific or more metaphysical "geographical conjectures, hypotheses and generalizations."

2 DEFINITION OF GEOGRAPHICAL FACTORS

In order to avoid vagueness in our analysis of the influence of geographical environment, we must state that by this concept we mean all cosmic conditions and phenomena which exist independent of man's activity, which are not created by man, and which change and vary through their own spontaneity, independent of man's existence and activity. In other words, if we take the total environment of a man or that of a social group, and subtract from it all environmental agencies directly or indirectly created or changed through man's existence and activity, we will have left approximately what is known as geographical

environment Natural climate temperature soil relief of surface distribution of water and water courses natural flora and fauna natural changes of seasons and geophysical processes the phenomena of gravitation storms earthquakes sea-currents and so on as far as they exist and change regardless of man's existence and activity are examples of geographical agencies in the above sense of the word On the other hand all phenomena and conditions whose existence and variation are direct or indirect results of man's existence and activity compose the agencies of anthropo social but not geographical environment Cultivated fields forests and gardens artificial channels artificial modification of natural relief of the surface of the earth or artificial climate and soil and sub soil all such phenomena are excluded from the geographical or natural agencies in the proper sense of the word

Now let us turn to our analysis of the correlations established between geographical agencies and social phenomena

3 FUNDAMENTAL PROPOSITIONS CONCERNING THE CHARACTER OF CONDITIONING OF SOCIAL PHENOMENA BY GEOGRAPHICAL FACTORS

There is no doubt that the totality of geographic conditions determines to some extent human behavior social organization and social processes But what is the nature of this conditioning? Is it direct or indirect? Is it rigid and inflexible? Is it possible to formulate definite and general correlations of geographic conditions with social phenomena? In order not to be lost in the sea of complex geographic influences let us formulate at once some fundamental propositions which outline the nature of these influences and which will guide us in our analysis These propositions are as follows

I *The conditioning role of geographical agencies (B) may be direct and indirect direct when they directly determine a definite series of social phenomena (A) according to the formula $A=f(B)$ indirect when they condition a definite series of social phenomena not because they influence them directly but because they influence some other phenomena (C) or (D) which in their turn condition the series A In this case the formula of*

indirect conditioning is $C = f(B)$, *therefore* $A = f(C)$ If A were not dependent on C, then the geographical factors would not have conditioned A at all. It is clear that indirect conditioning may consist sometimes of a long series of links of functional relations. B may condition C, C, the phenomena D, D, that of E, and only E may condition A. It is evident that, other conditions being equal, the longer is such a series of indirect relations and the more numerous are the middle members (C, D, E, F,) of such a series between A and B, the more remote becomes their interrelation and the less definite is the correlation between A and B. In such cases the geographical agencies may exert some influence, but it becomes so strongly neutralized and modified by interference of the "middle agencies" between A and B, that the correlation between them becomes intangible, or entirely indefinite. Since it is intangible, and unable to be described in a definite formula, it is practically equal to an absence of such correlation. In analyzing the conditioning role of geographical agencies we must always discriminate between its direct and indirect forms.

2 *According to the above, the conditioning influence of geographical agencies is not equally rigid and direct in regard to different categories of social phenomena.* While some of them exhibit a close and noticeable direct correlation with geographical agencies, some others do not show such a correlation at all. In this respect the hypothesis of J. Bruhnes, which in essence is identical with the Le Play school's *Nomenclature* series, appears to me as relatively valid. He states that those forms of human activity and corresponding social phenomena which pertain to the satisfaction of the primary necessities of man, such as alimentation, shelter for sleep, clothing and a few others, are in a more direct relation with geographical conditions than other human activities and social phenomena which are of different character. Correspondingly, he indicates six series of social phenomena where the correlation with geographic agencies is closer than in other fields of social facts. These six series are human habitation (inhabited areas, the character of houses and constructions), the direction and the character of roads, cultivation of plants and breeding of animals, exploitation of minerals and devastation in

plant and animal life. All that lies beyond these "six essential facts," such as forms of family and of political and social organization, the character of religions, the character of laws, of literature, of science, etc., exhibit less if any, correlation with geographical factors.³ In its essentials this hypothesis seems to be valid.

3 *In the field of social phenomena where the correlation is noticeable it rarely has a rigid character. The determinism of geographical factors as far as we can grasp is almost always relative.* J. Bruhnes expresses the same idea in the following way: "Between the facts of the physical order there are sometimes relations of causality between facts of human geography (geographical conditions and social phenomena) there are usually only *relations of connection*. To force, so to speak, the bond which connects phenomena with each other is scientifically false, and there will be great need of the spirit of criticism which will enable one to see clearly the many cases where connection is accidental and not causal."⁴

This non rigidity or relativity of geographical conditioning manifests itself in many forms. First, though in many cases geographical factors determine whether such and such social phenomena (*e.g.* the mining industry or the fact of the inhabitation of a definite area by men) *may or may not take place* in a definite location, nevertheless *geographical possibility does not mean that such a phenomenon really occurs in this location*. For instance, in spite of the rich natural resources of the place, the mining industry may not exist there owing to lack of non geographical factors. In this way, geographical conditioning in the absolute form becomes null and void. It is not rigid. The same relativity of geographical determinism exhibits itself in cases in which geographical conditions determine that "such a phenomenon may not take place at any given location" as, for instance, cultivation of plants in a desert or in an extraordinarily dry area. And yet, we know that due to artificial irrigation such things happen. This means that the geographical impossibility of a phe-

³ BRUHNES J. *Human Geography* Chaps. I-II, Rand McNally Co., N. Y. Compare with the Le Play school *Nomenclature*.

⁴ BRUHNES J. *Human Geography* p. 593 compare DE LA BLACHE, P. V., *Principles of Human Geography* N. Y., 1926.

nomenon does not prevent it. This is another illustration of the non rigidity of geographical conditioning. *Expectations based on geographical conditions exclusively in many cases may not be justified.*

Second, the non rigidity of geographical determinism shows itself further in the possibility of *many and various social forms within the same geographical area*. Like an abode geographical conditions may, in a relative degree, determine whether the place is suitable for human habitation or for the construction of a building. But whether the corresponding society will assume the forms of a primitive tribe, or those of a complex civilized society, whether the building will be a primitive hut, or pyramid, or castle, or palace of parliament, or commercial skyscraper, these things are not determined by geographical agencies. Almost always a large field of choice is left. What takes place depends not so much on the geographical as upon the non geographical factors. The same idea is expressed by C. Vallaux in the words that "the influence of geographical factors is negative but not positive, they often may hinder a phenomenon but they do not determine what will be"⁵

4. From the above it follows that the formulation of definite and general correlations between geographical and social phenomena is greatly hindered by this non rigidity and indirectness of geographical determinism. It is still more strongly handicapped by the neutralization of the effects of one geographical agency by another, and by neutralization of the effects of all geographical agencies by the non geographical factors. *And the more complex are the forms of civilization, the less noticeable, the less definite and the less tangible is the correlation between geographical conditions and social phenomena*. This does not mean that in such societies geographical agencies stop working, but that their effects are more and more neutralized by other agencies. Therefore, they become less tangible less noticeable, and more difficult to observe, grasp and generalize. For these reasons *it is to be expected that the attempts to establish such correlations may give at best only some tentative and very approximate hypothesis which may be applied to some societies and times and*

⁵ VALLAUX, C., *Le sol et l'état*, p. 106, Paris, 1911

rarely may pretend to be valid in regard to all societies and all times. Furthermore, it is to be expected that among many alleged correlations many will be fallacious, not to mention those which, being purely speculative, cannot pretend to be scientific at all.

Such, in brief, are the guiding principles and the general conclusions concerning geographical theories. On the following pages we shall see their validity. Let us now turn to the analysis of the principal correlations which have been formulated by different authors. We shall begin with the correlations in the field of Bruhnes' "essential facts" because they may be more definite and conspicuous.

4 GEOGRAPHICAL CONDITIONS AND DISTRIBUTION OF HUMAN POPULATION ON THE EARTH

The field of social phenomena where the influence of geographical factors is to be expected, is in the location of human population and its density. It seems evident that geographical areas which, according to their climate, soil, relief of surface, distribution of water, flora and fauna, are more convenient for human habitation and for satisfaction of human primary necessities, are to be more densely inhabited than the area less convenient in this respect.

This proposition, however, is evident only in appearance because which geographical conditions are "convenient" yet remains to be found. Besides, the conditions convenient for a primitive society may be quite inconvenient for an industrial society, the geographic environment convenient in one respect, *e g*, in climate, may be quite inconvenient in another respect, *e g*, poor in water, in minerals, in soils etc. Therefore, this and similar propositions of the geographers at the very best, may claim only a limited—local and temporary—significance. This may be seen from the following discussion.

It is claimed that in spite of human migrations and the fluctuation of the density of population of different areas "the general distribution of the larger human masses seems subject to a fixity, of course relative, and yet a fixity that is certain and surprising. The Siberian tundras, the Saharan hamadas or the

Amazon forest are almost devoid of men" ⁶ The same is true in regard to arctic regions and other places of similar inconvenience. A series of other data tend to show the same correlation. This may be seen from the data on the following page ⁷

Temperature, amount of rainfall, altitude are the geographical agencies, therefore, the correlation of these conditions with the density of the population shown by the tables tends to testify in favor of the influence of these factors on the distribution of the population on the earth. However, on the other hand, a series of other facts testify that the correlations shown by these data are in no way universal and constant. We cannot say that everywhere the most densely populated areas have a temperature of from 50 to 55 degrees, a rainfall of from 40 to 50 inches and an altitude of below 100 meters, as it is shown in these tables. Due to a different combination of various geographical conditions, and especially to the interference of the non geographical factors, the boundaries between the inhabited and uninhabited areas are changing and the above points of optimum are very different for different places, societies, and times. Many places uninhabited in the past become inhabited at the present moment, and *vice versa*, in spite of the absence of noticeable change in the geographical environment of these places. Through irrigation many deserts are transformed into inhabited areas. Through activity of civilized men many uninhabited prairies, forests, and similar places of America, Russia, and Asia are improved and become the habitat of man. If, as we shall see further, Mougelle's, S. C. Gilfillan's, and Stefansson's theory of "the Coldward or the Northward Course of Civilization," ⁸ is very questionable, nevertheless, it gives plenty of facts which show that great uninhabited areas of the North in the course of time have become inhabited densely, and have been transformed into centers of civilization. These and a great many similar facts indicate that the boundaries between the inhabited and uninhabited

⁶ BRUNNES, *Human Geography*, p. 47

⁷ VON MAYR, G., *Statistik und Gesellschaftslehre*, B II, 1897, p. 51. See other similar data in BRUNNES, *op. cit.*, pp. 186 ff., RATZEL, F., *Anthropogeographie*, 1891, Vol. II, pp. 210 ff.

⁸ See GILFILLAN, S. C., "The Coldward Course of Progress," *Political Science Quarterly*, 1920, pp. 393-410. STEFANSSON, *The Northward Course of Empire*

Density of the Population in the United States per Square Mile (1890)	Average Temperature (Fahrenheit)	Density of the Population in the United States per Square Mile (1890)	Average Rainfall (Inches)	Density of the Population in Europe per Square Kilometre	The Altitude
4 60	under 40 degrees	0 8	under 10	334	below 100 meters
12 51	from 40 to 45 degrees	1 6	from 10 to 20	216	from 100 to 200 meters
28 61	from 45 to 50 degrees	8 1	from 20 to 30	134	from 200 to 300 meters
31 02	from 50 to 55 degrees	43 1	from 30 to 40	69	from 300 to 400 meters
22 78	from 55 to 60 degrees	59 0	from 40 to 50	79	from 400 to 500 meters
17 89	from 60 to 65 degrees	25 1	from 50 to 60	34	from 500 to 600 meters
14 16	from 65 to 70 degrees	18 1	from 60 to 70	53	from 600 to 700 meters
7 49	from 70 to 75 degrees	4 1	over 70	43	from 700 to 800 meters
3 59	above 75 degrees			44	from 800 to 900 meters
				23	from 900 to 1000 meters
				18	from 1000 to 1100 meters
				1 3	from 1100 to 1200 meters
				0 8	from 1200 to 1300 meters
				0 0	from 1300 to 1400 meters
				0 0	above 1400 meters

areas are moving, consequently, geographical determinism in this respect is non rigid and very relative. The same is true in regard to the optimum point of altitude, temperature, and rainfall. While for Europe, according to the above table, the most densely populated zone of altitude is below 100 meters, and places above 1400 meters are almost uninhabited for the tropical regions, and for Abyssinia, Arabia, Central and South America, and for many other places, the most densely populated zones of altitude are above 1500 meters.⁹

Shifting of the most densely populated zones in the course of time from one altitude to another, in spite of an absence of a noticeable change in geographical conditions, is a still more conspicuous and unquestionable illustration. P. Mougeolle even formulated a general "law of altitude" according to which, with the development of civilization, the most densely inhabited areas and cities are descending from the zones of high altitude (mountains and plateaus) to those of lower altitudes (plains).¹⁰ Even though this "law," as a general formula, is questionable, the shifting of the zones of density of population in regard to altitude is proved by Mougeolle beyond a doubt. This illustration shows how relative the geographical determinism is in this field, how different and shifting are the geographical points of optimum in regard to the distribution of the population of the earth, how "local" and "temporary" are all generalizations and correlations in this field, and how impossible it is to construct the map of the density of the population of different areas exclusively on the basis of the geographical conditions.

What has been said concerning altitude may be said in regard to "points of optimum" temperature and rainfall in their interrelations with the density of population. They are also shifting in time and space. They vary for different places, times, and societies. For these reasons this analysis of the correlation between geographical conditions and the density of the population seems to corroborate completely the fundamental propositions stated above.

⁹ See the data in BRUNES, *Human Geography* pp. 186-196.

¹⁰ See MOUGEOLLE, P., *Les problèmes de l'histoire*, pp. 97-106. Paris, 1886. MOUGEOLLE, P., *Statistique des civilisations*. Paris, 1883, *passim*.

5 GEOGRAPHIC CONDITIONS AND THE CHARACTER OF HUMAN DWELLINGS, ROADS AND MEANS OF TRANSPORTATION

It is evident that the character of human habitations or houses more than many other social phenomena must depend on geographic conditions. In its material (wood, stone, brick, fur, etc.) and in its form, shape, and architectural type, it is influenced by geographic conditions. In the places rich with forests wooden houses predominate while where woods are scarce some other materials must be used. The same is true of the architectural type and shape, and the site of the dwelling. To some extent this expectation is warranted by the facts. But again this extent is rather moderate. In the opinion of one of the best "human geographers" it is estimated as follows: "If geography is far from explaining everything in the house, at least the human habitation cannot be completely understood without an appeal to geography."¹¹ This estimate of geographical influences in this field does not ascribe very much to them, and an innumerable series of facts may be indicated to show that "geographical conditions are far from explaining everything in the house." Places the most different in geographical respects often show remarkable similarities in types of dwellings. A conspicuous example of this is given by the United States of America, where over an immense area with the most different climate and other conditions, one sees practically similar types of houses in the East and the West in the North and the South. The variations in houses in different parts of the country rarely surpass those between different houses of the same city or neighborhood. On the other hand, it is enough to compare the types of dwellings in similar geographical conditions *e g.*, those in the prairies of America and in the prairies (*steppes*) of Russia, in the seashore regions (*e g.*, New York, Trieste, Almeria or Algeria), to see the greatest differences among them, in spite of a similarity of geographic conditions. The same is true in regard to the primitive peoples. "The Hopi and Navajo Indians have both occupied, for a long period, the same part of northwestern Arizona. Though the

¹¹ BRUNNES *Human Geography* p. 94. See also Chap. III.

same building material is available, nevertheless the Hopi construct the well known terraced sandstone houses with a rectangular cell as the architectural unit while the Navajo dwell in conical earth covered huts.¹² Add to this the changes in dwellings of the same area in the course of time. Without any noticeable change in the geographic conditions of the area the dominant type of dwelling often within some thirty or forty years changes considerably.

It is useless to insist on these evident facts. They can only mean that geographical determinism in this field is loose and relative. Its effects sometimes may be completely obliterated by a play of other factors. If the human habitation cannot be understood completely without an appeal to geography every attempt to account for it by geography alone is hopeless and fallacious. All that has been said of human habitation may be applied to the direction and character of roads and generally to the means of transportation.¹³

6 GEOGRAPHICAL CONDITIONS AND CLOTHING

This category of social phenomena also has a correlation with geographical conditions though less noticeable than that of dwellings and roads. Clothing in the colder regions or seasons is somewhat thicker and warmer than in warmer regions or seasons. But this is almost the only way in which the influence of geographical agencies manifests itself. Immensely numerous differences and variations in the clothing of different societies, groups and times seem to be conditioned by other than geographical agencies. The extravagances of fashion, the yearly changes in men's and women's clothes, the different uniforms of various social groups (soldiers, priests, monks, officials and so on), the different costumes of various peoples and especially through historical times these and thousands of similar phenomena seem to have nothing to do with the geographical factors. Their influences are slight and unnoticeable.

¹² LOWIE R. H. *Culture and Ethnology* pp. 49-65 N. Y. 1917.

¹³ See an able analysis in BRUNES *op. cit.* pp. 110 ff. VALLAUX C. *La mer* Paris 1908 *passim*.

7 GEOGRAPHICAL CONDITIONS AND FOOD AND DRINK

There is also some dependence between the flora and fauna of a geographic environment and the quantity and the quality of food and drink of a society. The seashore people eat more fish than a people who inhabit an area without waters rich with fish. A society situated in a fruit bearing area eats more fruit than those in areas where the trees are absent or cannot be cultivated. Such correlations may be found in many places. But these are neither general, nor always noticeable. Even among relatively primitive tribes it is easy to see that the principal forms of food are often similar among tribes situated in essentially different environments and different among tribes of similar environments. Here are a few cases of the many collected by F. P. Armitage.

Principal kinds of food and corresponding peoples

Rice Oraons, S. Indians, Chinese, Koreans, Mundas, Japanese, Looshais, N. Aragans, Tonkingese, Laosians, Siamese

Wheat, Millet or Oats, plus Cattle or Fish Kabardians of the plain and mountains, Armenians, Albanians, Tadjiks, Turkomans, Norwegians, Finns, Lvs, Kirghizans, Scots

Fish plus Flesh Eskimos, Dogribs, Chinooks, Kootenayans, Comanches, Blackfeet, Crows, Crees, Charruas, Macobys

Flesh plus Maize Sioux, Pawnees, Ojibwas, Lenguas, Machucays, Iroquois, Algonquin, Muskohogian, Concapah, Yakut, Mohaves, Navajos, Yumas, Pimas, Papagos, Opatas, Mayas, Mexicans, Tepehuans¹⁴

In each 'food group' we see peoples who live in the most different geographical environment. The same "independence of food" from geographical factor is still more conspicuous in complex societies. In spite of the most different geographical conditions of the United States of America food is substantially the same. Furthermore, "the people of western Europe consume large quantities of coffee, tea, and cocoa, while cow's milk from European mountain pastures is consumed by the inhabitants of Shanghai and South Africa. Increased facilities of transporta-

¹⁴ ARMITAGE, F. P., *Diet and Race*, pp. 30-32, London 1922

tion tend more and more to intermingle all human foods" On the other hand, the food of different social classes dwelling in the same geographical environment, in the same city, often differs, quantitatively and qualitatively, much more than the food of peoples living in the most different geographical conditions

An idea of this difference is given by the following table, one of many similar In Russia the food of different classes of the peasantry before the Revolution was as follows ¹⁵

The Classes of the Peasantry with a Yearly Income	Number of Calories Consumed in the Form of Per Cent of the Total		
	Vegetative Food in Per Cent	Animal Products in Per Cent	Number of Calories
Up to 100 rubles	81 3	18 7	3 230
From 100 to 150 rubles	75 6	24 4	4 139
From 150 to 200 rubles	72 5	27 5	5 072
200 and over	69 0	31 0	5 760

If we take the quantity and the quality of food of different social classes of the Russian society, the difference will be still greater The same is true of different classes of other societies ¹⁶ The difference in food of different social classes of the same society cannot be accounted for through geographical conditions The same is true in regard to the differences between the food of the Russian, the English, the Chinese and the American societies, as a whole The same may be said for "trends" in food habits such as in France, where in the period from 1840 to 1895 the consumption of bread, wine and potatoes per head of the population increased by 50 per cent, that of meat, cheese and cider, by 200 per cent, that of sugar and coffee by 400 per cent ¹⁷ All such changes and differences and trends seem to have nothing to

¹⁵ KLEPIKOV S., *Planie Russkogo Krestiansina*, 1920, pp 13 ff

¹⁶ See a great many data for different countries in WEBB, A., *The New Dictionary of Statistics*, pp 156-165, 273-289, London, 1911, GROTHJAN, A., "Über Wandlungen in d. Volksernährung," *Schmoller's Staats und Sozialwissenschaftliche Forschungen*, Bd XX, Heft 2, Leipzig, 1920, pp 58-64, SLOSSE et WAXWEILER, E., *Recherches sur le travail humain dans l'industrie*, 1910 PERVUSHIN "Potrebienie," in *Granat's Encyclopædia*, Vol 33 (Russ)

¹⁷ D'AVENEL, G., *Le mécanisme de la vie moderne*, p 157, Paris, 1908

do with geographic factors. Meanwhile, they compose the most substantial phenomena in this field of geographical determinism.

8 GEOGRAPHICAL CONDITIONS AND ECONOMIC LIFE AND ORGANIZATION

A Geographical Conditions and Wealth—We have numerous theories of the geographical conditioning of economic phenomena. The first group of these theories tries to show that geographic conditions have determined almost completely the amount of wealth produced and owned by a society, especially during the earlier stages of social life. "Of all the results which are produced among a people by climate, (food) and soil, the accumulation of wealth is the earliest, and in many respects the most important . . . and the history of wealth in its earliest stages will be found to depend entirely on soil and climate."¹⁸

Such is the essence of these theories in Buckle's formulation. There is no doubt that there is a part truth in the statement. But only a part. Even in regard to many primitive tribes the above proposition is fallacious, not to speak of its fallacy in regard to complex societies. In the first place the phenomenon of wealth itself is not something static but something that varies strongly in its nature, according to the social circumstances. Which of the products of a geographic environment become economically valuable, depends not only on the nature of these products but also on the character of a society. Oil, naphtha, even coal and iron ore, or an abundance of water falls have no economic value for a society which does not know how to utilize them. A territory rich with these products is very unfavorable for the accumulation of wealth by a primitive tribe of hunters or tillers, and the same territory is very favorable for the enrichment of a modern industrial society. The same geographic environment may have great economic value for a people who know how to exploit it, and it may have no value for a people who do not have this knowledge, and *vice versa* quite different geographical regions may have similar economic value for different peoples. This means that there is no such thing as a

¹⁸ BUCKLE, H. T., *Introduction to the History of Civilization of England*, new and revised edition by J. M. Robertson, pp. 24-28, and Chap. II, London, N. Y.

geographic environment valuable in itself, under all circumstances, for all societies, regardless of their character. For these reasons Buckle's proposition needs a serious limitation. In the second place, the assumption that all brilliant and wealthy civilizations of earlier times have happened in an exclusively "favorable" natural environment, is also questionable. The geographical conditions of Sparta, or Athens, or even ancient Egypt may be styled as "rich" and fertile only in a very relative sense. If there were no accommodations made by the inhabitants, the natural environment of these societies is to be recognized as rather "poor." And yet, this did not hinder the production and accumulation of great wealth. On the other hand, in spite of the richness of the natural resources of America its pre-European inhabitants did not accumulate great wealth.¹⁹ In the third place the assumption that primitive tribes who live within the same geographical environment are equally wealthy is also not accurate. Among other authors R. H. Lowie and R. Thurnwald have shown this in regard to the Hopi and the Navajo Indians and in regard to a series of other tribes.²⁰ In the fourth place, the average per capita wealth of contemporary societies and corresponding differences in this respect cannot be accounted for through the hypothesis. The same is true in regard to the fluctuations of impoverishment and prosperity during the course of time within a population which lives in the same geographic environment. The natural resources of Russia are scarcely poorer than those of any other country, and yet, the per capita wealth of its population is one of the lowest. The Indians and the Americans inhabit the same territory and yet the former were poor, the latter were and are rich. Bruhnes gives a long series of facts which show the accumulation of considerable wealth and economic prosperity among populations in a very hostile natural environment and *vice versa*.²¹ These reasons are enough to show the one-sidedness

¹⁹ See further the classical criticism of these theories given by Gobineau. His objections are valid in essence up to this time. Some of Buckle's fallacies in this respect are justly indicated and checked by Robertson in his editorial remarks and footnotes in the above edition of Buckle's book.

²⁰ See LOWIE, R. H., *Culture and Ethnology*, pp. 48 ff., N. Y., 1917, THURNWALD, R., "Die Gestaltung der Wirtschaftsentwicklung aus ihren Anfängen heraus," in *Erinnerungsgabe für Max Weber*, Vol. I pp. 273-336, Munich, 1923.

²¹ See BRUHNES, *op. cit.*, Chap. VIII and pp. 593 ff. See his discussion.

of the theories under discussion. There is some truth in the theories because, under given conditions of a society the character of natural resources may facilitate or hinder an accumulation of wealth, but this is only one factor among many, and it is scarcely more important than many other non geographical agencies.²²

B *Geographical Conditions and the Character of Industries of a Society*—A second series of the geographical theories tries to show the existence of a close correlation between geographical conditions and economic or industrial activities of a given society. Practically every textbook in economic or industrial geography, and almost every textbook in history, emphasizes the great conditioning role of geographical factors in this respect.²³ Place determines the method of obtaining the means of subsistence of a society or the character of its economic activities. We have seen how Le Play's formula shows the determining role of geographical conditions. In a similar way it is traced by a crowd of historians and economic geographers. It is evident that a society whose territory does not include coal or other valuable minerals and metals cannot be expected to develop the mining industry. It is clear also that a territory with infertile soil cannot be expected to produce a society whose principal industry is agriculture. This means that there is some truth in all these theories. But again, the correlation between geographic environment and the industrial activities of a society is often overestimated. Though in many cases it is tangible, in most of the others it is very loose and even indefinite.

It is hard to agree with the claim of Demolins and other geog-

²² The fundamental source of the fallacies of the geographers is their disregard of social environment and of hereditary differences of human beings. In this respect Buckle's complete disregard of inherent differences expressed in his note on page 22 is typical for many geographers. If a one-sided geographical theory of the production of wealth is very defective, still more defective is a geographical theory of the distribution of wealth which is also typically outlined by Buckle. It is so fallacious that it does not need even to be criticized. See BUCKLE, *op cit.*, pp. 28 ff.

²³ See as example SEMPLE, ELLEN CH., *American History and Its Geographic Conditions*, 1903. SEMPLE, *Influences of Geog. Environment*, 1911, SMITH J. R., *Industrial and Commercial Geography*, 1913. WHITEBECK, R. H., and FINCH V. C., *Economic Geography*, 1924. HUNTINGTON, E., and WILLIAMS, F. E., *Business Geography*, 1922. WHITEBECK, R. H., *Industrial Geography*, 1924. see other literature cited in these books.

raphers that a mere knowledge of the geographical conditions of a given territory is sufficient to enable us to forecast the character of the industries or the principal economic activities of the population of such a territory. The conditions of the steppes of Russia and American prairies is similar in many respects, and yet the economic activities of the nomadic and half-nomadic population of the Russian steppes and those of the American prairies are different. The population of the mountains of Switzerland, the Basques of the Pyrenees, and the Tibetans, live in similar mountainous conditions and yet the industries through which they get their means of subsistence are different. The Bushmen and the Herrero dwell in the same deserts, but hunting is the basic industry of the former and cattle breeding of the latter.²⁴ Many Indian tribes lived in areas where the soil was fertile and very favorable for the development of agriculture, and yet it almost did not exist at all among them. On the other hand, in the Western Carpathians which are much less favorable for the development of agriculture, it is greatly developed and 88 per cent of the ground is cultivated, while in the Eastern Carpathians where land is more fertile, cultivation is less developed and only 13 per cent of the land is tilled.²⁵ On Majorca, especially on the great western sierras of the island, in spite of the most unfavorable conditions, the people "have accomplished and are still accomplishing the miraculous feat of developing irrigated gardens of their *huertas*."²⁶ *Post factum*, we are prone to believe historians when they say that "the development of navigation by the Phœnicians was due to the favorable sea shore environment." In fact these and a great many similar explanations are misleading. In the case of the Phœnicians, the real situation was as follows:

It will be difficult to find any less hospitable regions in the Mediterranean than the little corner of the Syrian shore where are situated the ports of Tyre and Sidon, famous in antiquity. The situations are unfavorable in themselves, and very often a heavy swell from the open sea makes it difficult to enter or to leave the port, and yet,

* See THURNWALD, R., *Die Gestaltung der Wirtschaftsentwicklung aus ihren Anfängen heraus*, Munich, 1923.

* BRUNES, *Human Geography*, p. 525.

* *Ibid.*, p. 594.

the Phœnicians were a people of navigators and colonists. Why? Because their commercial ingenuity made up for the unkindness of nature.²⁷

The same is true of a great many other *post factum* geographical interpretations of the industrial activities of different peoples given in the courses of history. From the fact that the Greeks or the Phœnicians became navigators and developed a great maritime commerce they concluded that the geographical position was responsible for it.²⁸ In fact in these and in many other cases the geographical environments were far from being favorable. Besides plenty of peoples have lived in a much more favorable environment for the development of navigation and failed to do so.²⁹ Such discrepancies between geographical conditions and the character of the industrial activities of a population are so numerous that the above statement of the geographers loses its general character and eventually means only indefinite geographical determinism. The final proofs are those changes of the industrial activities of a population which sometimes occur in a short period of time. For instance in the United States during the last thirty years the percentage of males engaged in agriculture decreased from 50 to 35 of all males gainfully employed. This is a very serious change in the industrial activities of the population. Neither can it be accounted for through geographic conditions. In essence they are now exactly the same as thirty years ago. The following table shows the number of workers engaged in certain specified occupations in the United States per million of the population.³⁰

The table shows very serious changes in occupational activities of the population within the period of seventy years. These changes cannot be accounted for through geographical conditions.

²⁷ BRUNES *op cit* p 595. DUBOIS MARCEL *La crise maritime* p 25.

²⁸ See a more detailed analysis as to the extent of Greek geographical environment which was favorable for maritime navigation in VALLAUX *La mer* paragraph 7.

²⁹ See many facts in BRUNES *op cit* Chap VIII and pp 594 ff. See also VALLAUX's criticism of corresponding geographical theories of K. Ritter and F. Ratzel and the convincing and abundant factual material given to show the inadequacy of all one-sided geographical theories of this kind. VALLAUX, C. *La mer* pp 27 ff. and Chap II. VALLAUX *Le sol et l'état* pp 152 ff. and *passim*.

³⁰ JONES M. Z. "Trend of Occupations in the Population." *Monthly Labor Review* May 1925.

Occupat on	Number of Workers per M llion of Populat on of the United States							
	1850	1860	1870	1880	1890	1900	1910	1920
Farmers	103 097	79 809	77 320	84 318	83 904	74 606	64 231	57 550
Wheelwrights	1 323	1 040	543	311	204	178	41	35
Brick and stone masons and plasterers	2 733							1 676
Phys cians and surgeons	1 757	1 751	1 618	1 708	1 665	1 737	1 643	1 372
Clergymen	1 157	1 194	1 138	1 290	1 401	1 469	1 283	1 204
Plumbers	81							1 956
Clerical	4 369							41 246
Chauffeurs							498	2 697

According to Petrenz in Leipzig during the period from 1751 to 1890 349 new occupations appeared and 115 of those previously existing disappeared³¹ It is difficult to explain these changes by the influence of geographical factors These and thousands of similar examples show that the industrial activities of a society change and sometimes radically in the same geographical environment This is further proof of the one sidedness of Demolins claim and the exaggerated character of the corresponding geographical theories

The geographical conditions of America or Russia within the next two hundred years probably will change very little and yet who can foresee or predict what will be the principal industries of these countries at that time? We probably would not be far from the truth if we said they would be very different from the present Any new invention any considerable change of the racial composition of the population or of the social organization and interrelations of a society with other societies calls forth serious and substantial modifications of its industrial activities³²

³¹ PETRENZ O *Die Entwicklung der Arbeitsteilung in Leipziger Gewerben* p 89 Leipzig 1901

³² Even the nature of geographical conditions is changed by complex societies The nature of the geographical conditions of the United States is now after great progress by science, quite different from that before What is now regarded as a very favorable nature (rich with oil, coal, iron) in the past was regarded as very unfavorable and vice versa

In regard to complex society especially, there is no possibility of any close correlation between physical environment and industrial activities

C Geographical Conditions and Business Cycles and the Rhythm of Economic Life—The third group of geographical theories consists of those attempting to establish a correlation between geographical conditions and the waves of prosperity and impoverishment, business revivals and depressions. The theories claim that the economic life of a society ultimately is determined by geographical agencies. Plato often said that great geographical processes like earthquakes or inundations were responsible for the decay of prosperity and of the civilizations of many societies. A great many other authors have stressed the parallelism between dynamics in climate and economic cycles in the life of different societies.

At the present time we have several studies of this kind. As examples of such studies, we may mention the sun spot theory of business cycles of W. Stanley Jevons, published in 1875,³³ the same theory slightly modified by H. Stanley Jevons,³⁴ the theory of W. H. Shaw, concerning the correlation between the periodicity of wheat yields and climatic changes,³⁵ Brückner's theory of the correlation of climatic changes with the fluctuation of the economic life of a society,³⁶ H. H. Clayton's theory of the commercial panics in the United States and their correlation with periods of deficient rainfall in the Ohio Valley,³⁷ a similar theory of W. H. Beveridge,³⁸ and finally the meteorological theory of business cycles developed by E. Huntington (1876-)³⁹ and

³³ JEVONS, W. S., *Investigations in Currency and Finance*, 1884, pp. 194-243.

³⁴ JEVONS, H. S., "The Causes of Unemployment," *The Contemporary Review*, 1909, pp. 165-189.

³⁵ SHAW, W. N., "An Apparent Periodicity in the Yield of Wheat," etc., *Proceedings of the Royal Society, Series A*, Vol. LXXVIII (1906), pp. 69-76.

³⁶ BRÜCKNER, "Der Einfluss d. Klimaschwankungen auf die Ernterträge und Getreidepreise in Europa," *Geographische Zeitschrift*, Vol. I, 1895, pp. 39-51, 100-108.

³⁷ CLAYTON, H. H., "The Influence of Rainfall on Commerce and Politics," *Popular Science Monthly*, Dec., 1901.

³⁸ BEVERIDGE, W. H., "British Exports and the Barometer," *The Economic Journal*, March, 1920. "Weather and Harvest Cycles," *The Economic Journal*, 1921, pp. 429-449.

³⁹ HUNTINGTON, E., *World Power and Evolution*, 1919, Chaps. II, III, IV.

especially by H L Moore (1869-)⁴⁰ There are several other works of this kind but they need not be mentioned because they add very little, if anything, to the data and the statements of the works indicated The theory of W S Jevons and partly that of H S Jevons are now unsupportable in their concrete form⁴¹ All of the other theories are similar in character Because the most elaborate and the most scientific appear to be those of Beveridge and Moore, my analysis is therefore limited to a discussion of these two authors and to a brief analysis of a somewhat different hypothesis of Huntington

The essence of Dr H L Moore's elaborate theory is as follows

The weather conditions represented by the rainfall in the central part of the United States, and probably in other continental areas pass through cycles of approximately thirty three years and eight years in duration, causing like cycles in the yield per acre of the crops, these cycles of crops constitute the natural, material current which drags upon the surface the lagging rhythmically changing values and prices with which the economist is more immediately concerned⁴²

According to his mathematical analysis, the correlation between the fluctuation of crops and an index of the mean effective rain fall in the Ohio Valley during the critical periods of the crops (July August) is $r = .584$ ⁴³ Having shown this correlation Moore proceeds to find a further correlation between the fluctuation of the crops and the business cycle His theory is as follows

The rhythmically varying yield per acre of the crops is the cause of economic cycles, when the yield increases, the volume of trade, the activity of industry, and the amount of employment increase, the demand for producers' goods rises, the demand curves for agricultural commodities rise, with the ultimate result of a rise of general

⁴⁰ MOORE, H L, *Economic Cycles Their Law and Cause*, N Y, 1914 *Generalizing Economic Cycles*, N Y, 1923

⁴¹ W C Mitchell says this theory "scarcely affords a convincing explanation of business cycles" MITCHELL, *Business Cycles*, 1913, p 19

⁴² MOORE, H L, *op cit*, p 149

⁴³ MOORE, H L, *op cit*, p 53

prices The contrary changes would follow upon a fall in the yield per acre of the crops

The theory is supported by the author's painstaking analysis of the fluctuations of the business barometer (measured through pig iron production) and those of crop production The coefficient of correlation between them is $r = .718$ with a lag in the cycles of pig iron production of one or two years The coefficient of correlation between the fluctuations of crops and the movement of general prices is still higher (with a lag of about four years) here $r = .800$ ⁴⁴ Such is the essence of this theory

Beveridge's theory of business cycles is similar to that of Moore The only differences are in the data methods and some of the conclusions The essentials of his theory and argumentation are as follows Wheat prices in western and central Europe during the period from 1500 to 1869 appear to show that in the fluctuation of prices there is a major periodicity of 30.6 years or 15 years one way and 15 the other and a minor fluctuation of 15.2 or 15.4 years With a lag of one year this periodicity corresponds in his opinion to the periodicity in crops due to fluctuations of the weather Other factors influenced the fluctuation of prices but the most fundamental was the weather The chart (of prices) must be accepted as essentially a reflection of harvest success and harvest failure In his first article he claimed that the periodicity of 15.2 or 15.4 years in the fluctuation of prices corresponded to a similar periodicity of weather conditions due to sun spots In his second paper in answer to some objections presented by the secretary of the Royal Meteorological Society W W Bryant Beveridge gave a more complex interpretation He agreed that the periodicity of the sun spots was not 15 but about 11 years He admitted that a cycle of 15.3 years had not been found in any meteorological record However he claimed that weather fluctuations showed periodicities of 4.38 or 4.77-8.34 years Besides there was the periodicity of 4.37 years in rain fall The period of 15.3 or of 30.6 years could be divided correspondingly into the periods of 4.38-4.77-8.34-4.37 years which were similar to the fluctuations of meteorological phenomena In his further analysis he indicates that besides the periodicities of

⁴⁴ MOORE H L *op cit* pp 147 ff

15 and 30 years in the movement of prices there were periods of 4.38, 5.11, 2.74, 3.71, 34.992, 48.74-75, and 271 years⁴⁵

Such are the essentials of Beveridge's theory. The meteorological theories are similar to those of Moore and Beveridge, but less elaborate and based on less data. The theory of Huntington is somewhat different. He tries to establish the influence of climatic conditions on economic life not so much through the medium of harvests, conditioned by the weather, as through the medium of the health of the population which is affected by climatic agencies. His principal thesis is that climate and its fluctuations cause fluctuations in health and the efficiency of physical and mental work, fluctuations in health and in work efficiency lead to corresponding fluctuations of business and economic conditions of a society. He tries to corroborate this contention with many data, among which the most important are those which show the parallelism of the death rate and the business depressions or revivals in Connecticut, New York, Massachusetts and Chicago in the period from 1870 to 1910. "A high death rate (as an index of health) regularly precedes hard times, while a low death rate precedes prosperity. Health is a cause far more than an effect (of business prosperity). Health in its turn is determined by the weather." Such in brief is the essence of Huntington's theory⁴⁶

Now let us briefly discuss to what extent the above theories are valid. We will admit at the start that many dynamical processes in the geographical environment of a society influence and sometimes very seriously, dynamics of economic life. Earth quakes, like the recent one in Japan or many others, or the drying up of an area, or its inundation, and similar natural processes may disorganize or even imperil the economic life of a society. However, such catastrophic changes in geographical environment are relatively very rare and often of short duration. Therefore in a long life of a society they do not count much in the non-catastrophic fluctuations of economic processes.

In the second place, it is scarcely possible to deny a conditioning role to climatic and geographic agencies in determining the

* BEVERIDGE, *Weather and Harvest Cycles*, *passim*

* HUNTINGTON, E., *World Power and Evolution*, pp. 29-31, and Chaps. III, IV

quantity and quality of harvest, and through it, especially in agricultural countries, of fluctuations of the business cycle. However, though human control in this field is still limited, nevertheless, interference of the other non geographical agencies, like agricultural knowledge, human energy, care, and so on, and also the expansion of trade and commerce now and in the past, have been limiting and neutralizing to a considerable extent the effects of geographical influences. Besides, in any wide area geographical factors rarely are identical, if favorable in one place they are unfavorable in another and in this way they, themselves, may neutralize their own effects to an extent which renders them incapable of seriously influencing the whole economic life of a society. Nevertheless, we must still recognize to some extent the conditioning role of geographical factors in the dynamics of economic life.

But does this mean that this conditioning is so great and so decisive that such phenomena as business cycles and movements of prices must reflect it regularly, as the above theories claim? Can we say that this correlation is so close that it may be traced in the business cycles of an industrialized society? It is hard to answer this question definitely. Nevertheless the reasons for a negative answer are almost as strong as for a positive one. The weakest points of theories such as those of Beveridge are as follows. First, they claim that a definite periodicity of weather conditions (or of sun spots) exists and with this periodicity attempt to correlate corresponding fluctuations in business. Even granting that such a periodicity exists, we are somewhat embarrassed by its diversity as reported by different authors of this school. According to Moore these periods are of 8 and 33 years of length, according to Beveridge they are 4.37, 5.1, 11.12, 8.34, 15.3, 30.6 and other years of length, according to Jevons, both W. S. and H. S., they are 10.44, 3.7, 7 and 11 years, according to W. N. Shaw, 2.75 and 3.67 years, according to Brückner, 35 years, and so on. This discordance in the length of weather periodicities among the proponents of this theory of economic cycles makes a definite, and more or less general, periodicity in weather conditions somewhat uncertain and raises the question as to whether the above periods are really existing or have arisen as

a result of arithmetical and mathematical manipulations of the authors

Some of them, like Professor Moore, have obtained their periods from a computation of a real amount of rainfall in the Ohio Valley⁴⁷ but some others, like Beveridge, deduced the periodicity in weather fluctuation from that of the fluctuation of wheat prices. Besides, the lengths of the periods of Beveridge's theory are so various and different that the very fact of their existence amounts almost to an absence of any definite periodicity to say that there are periods of 2, 3, 4, 5, 7, 11, 15 and so on years practically means that there are no periods. Thus the first defect of all these theories vitiates their starting point and suggests their tentative and uncertain character. Their second defect results from the fact that the periodicity of the sun spots or of weather fluctuations is also uncertain. Though Sir Arthur Shuster's theory of the eleven year periods of the sun spots is popular, nevertheless, this period represents only an approximate average of various figures ranging from 16 to 6 years between the maximum periods of the sun spots in the years from 1750 to 1906⁴⁸. As any series of figures may give some average this eleven year period is rather fictitious and not a real periodicity of the sun spot maximums. Furthermore several other meteorologists have indicated the existence of different periodicities of the sun spots and weather fluctuations. This discordance of the meteorologists indicates the uncertainty of the very fact of the existence of any periodicity in these fields. And some of the prominent specialists in the field of meteorology probably are not far from the truth when they deny decidedly the existence of any definite periodicity in the fluctuation of the sun spots or weather conditions. An example of this is the paper "Weather and Cyclical Fluctuations," by Walter W. Bryant, honorary secretary of the Royal Meteorological Society. In his criticism of Beveridge's theory he indicates that there is no definite periodicity either in the sun spots, in the effects of the tide-raising efficiency of the moon, or in the weather fluctuations.

⁴⁷ Though even this is seriously questioned. See WRIGHT, PH. G., "Moore's Economic Cycles," *Quarterly Journal of Economics* Vol XXIX, pp 631-641.

⁴⁸ The sun-spot maximums happened in the years 1750, 1761, 1770, 1778, 1804, 1817, 1830, 1837, 1848, 1860, 1871, 1883, 1893, 1906. The sun spot minimum periods give a similar series.

"Accepting the barometer data I have examined those from 1873 to 1904 (for India and other places) and from 1873 to 1903 for North America, each being a homogeneous series. The barometer figures show no evidence of any period such as fifteen and one third years" (claimed definitely by Beveridge in his first paper)

As to the periodicity of the sun spots, says Bryant, Professor Kimura has analyzed them from 1750 to 1911, found their curve, and made a prediction of their movement up to 1950. "But the actual figures disagreed with the prediction of the first year and became worse and worse year by year." The conclusion of the author is that in view of the absence of any definite periodicity in meteorological conditions "it does not seem likely that the time has yet come for long range forecasting to become a practical factor in the regulation of the world's food supply." ⁴⁹ The validity of these objections has been recognized partly explicitly and partly implicitly by Beveridge in his second paper. He is much less decisive in his statement and practically gives up his theory of the fifteen years periodicity in the fluctuation of weather conditions. Instead he indicates numerous different periodicities in the fluctuation of prices but fails to show corresponding periods in the fluctuation of the weather. Finally, he concludes, "There is hardly any enterprize more deluding or more desperate than the search for weather cycles. The gold we gather turns incessantly to ashes but the 15.3 year cycle seems to have the ring of true metal." ⁵⁰

This is practically a confession to the invalidity of his own theory, which is still more weakened because his prediction of an exceptionally poor harvest for the years 1923, 1924, 1925 seems not to have been corroborated. ⁵¹

⁴⁹ BRYANT, W., "The Weather and Cyclical Fluctuations," *The Economic Review*, 1921, pp. 46-49. See also WARD, R. DE C., *Climate Considered Especially in Relation to Man*, pp. 356 ff., Chap. XI, N. Y., 1918. "The results of investigations of the sun spot periodicity and of periodic oscillations of (climate) have not been satisfactory. In some cases the relation to sun spot periodicity is open to debate in others the results are contradictory." Such is a brief summary of the situation of the problem. *Ibid.*, pp. 356-357.

⁵⁰ BEVERIDGE, *op. cit.*, p. 449.

⁵¹ Still more questionable are the attempts to correlate the periods of the sun-spot maximums with revolutions and social upheavals or psychical pandemics (theory of a Russian, Professor Chjevsky, published in 1922) the sun spots with

This means that the corner stone of the meteorological theories of business cycles, the existence of a definite periodicity in the sun spots or in the weather fluctuations, is not certain at all. Naturally still less valid is a theoretical scheme erected on such an uncertain foundation. And the discordance of the theories about the length of the periodicities is a further corroboration of this uncertainty. Lack of correlation between business cycles and the alleged cycles in weather conditions, as soon as they are definitely proclaimed, is further evidence of the inconclusive character of all these theories. To avoid such contradictions the authors try, through division and subdivision of their periods, to patch up their theories, but such efforts are far from being successful. Some of them, again in disagreement with one another, try to achieve the alleged parallelism of business and weather fluctuations through the use of different lags such as one, two, three, four or five years, according to the demands of the theory. It is evident that such mathematical manipulations as the subdivision of the alleged periodicities and the use of elastic "lags" which shorten and lengthen according to the requirements of the problem can make correlations where none exist. Furthermore, the data which are carefully analyzed like those of Professor Moore are nevertheless too local to form a basis for world wide generalizations and for the claim that "the rhythmically varying yield per acre of the crops is the cause of economic cycles." It may be one of the causes but it certainly is not the cause. Finally the correlation of the years of business revivals and depressions with the years of good and bad harvests does not even support the idea of a mutual relationship between business fluctuations and crops.

There are many cases in which increased yields accompanied increased prosperity or in which poor crops and depressions went together. But the correlation between volume of production and business conditions is far less perfect for wheat than for minerals (pig iron and coal). The years of 1899 for America, 1895 for

epidemics (Sardegna) with religious upheavals, and so on. This skepticism, however, does not hinder one from welcoming the newly organized French Society of Scientific Astrology whose purpose it is to study scientifically the problem of meteorological influences on social life. Something valuable may come out of such a study.

Britain, 1897 for France, and 1907 for Germany were the years of poor crops and, at the same time, of prosperity for each of these countries. The years of 1908 for America, 1902 for Britain, 1903 for France and 1902 for Germany were years of good crops, and at the same time of business depression. Good crops tend to bring prosperity (in an agricultural country) and poor crops depression in the seasons which follow. But the numerous exceptions to this rule show that other factors often overbalance the effects of the harvests.

Besides, growth in production of wheat and pig-iron and coal is also far from being parallel.⁵²

These considerations⁵³ seem to be sufficient for the conclusions that any close correlation between weather conditions and economic fluctuations is not proved as yet, that the theories of the parallel periodicities without lags still need to be proved, and that even where the parallelism is found it is necessary to show further that it is not incidental. Some influence of geographical factors in the field of economic phenomena must be recognized, but it is so complex and so strongly modified by other factors that it is very "loose" (except in catastrophes) and is scarcely possible of description in a definite mathematical formula.

Huntington's variety of the meteorological theories of business fluctuations, we shall see further, exaggerates enormously the influence of climate upon health and efficiency. Therefore, its corner stone is not valid, not to mention many possible objections to his method and data. His whole theory is still more questionable than the above theories. A criticism of his correlation between climate and health will be given further so that we shall not discuss his theory here.⁵⁴

⁵² MITCHELL, W., *Business Cycles*, pp. 237-239, 452-453.

⁵³ See other objections to these theories in *L'année sociologique*, pp. 806-811, 1923-24, and in special studies of business cycles and economic fluctuations. As an additional reason against the correlation it may be mentioned that the correlation between sun spot number and tree growth which is expected to be much higher than that between sun-spot number and economic conditions, is only +0.1212. "The relationship is by no means so intimate as many writers imply." HARRIS, J. ARTHUR, "The Correlation Between Sun-Spot Number and Tree Growth," *Monthly Weather Review*, Jan., 1926, 54, 13-14.

⁵⁴ Sometimes the influence of meteorological conditions upon business fluctuations is seen in the so-called "seasonal fluctuation of business." Even such authors as A. Hansen, who seem to be far from partisans of the meteorological theory of business cycles, writes: "The seasonal fluctuations are those which are

Thus it seems that even in the field of economic phenomena, where a greater and more direct influence of geographical conditions is to be expected, it is neither so omnipotent as to outweigh the influence of other factors, nor so decisive as to be manifest in rigid correlations, nor so general as to account for differences in economic processes and organization within different social groups and within the same group at different times. If it is fallacious to deny any rôle to geographical factors in this field, it is no less fallacious to overestimate the rôle as many geographers and other scholars have done.

9 GEOGRAPHICAL ENVIRONMENT AND RACE

The position of many geographers on this question is expressed typically by Buckle in the following statement:

I cordially subscribe to the remark of one of the greatest thinkers of our time, who says of the supposed differences of race, "Of all

due to the influence of the seasons, summer and winter, harvest and seed time.' I am afraid there is a curious substitution of the meaning of words. There are some short time fluctuations ('seasonal') and still they may be due to other than geographical or meteorological conditions. From the fact of their existence it does not follow at all that the responsible factors are meteorological. Only when such short time fluctuations within the year show that they repeat regularly from year to year approximately in the same climatic periods or in the same months, is such a regularity evidence in favor of climatic factors. Meanwhile, if not all, then at least a great number of such "seasonal" fluctuations do not show any such regularity. For instance, Hansen's data of railroad earnings show that the months of maximum earnings in different years were quite different. December, July, and October in 1902, April and July in 1903. February, November and December in 1904, December and November in 1905. February and January in 1906. April and May in 1907, November and December in 1908. This means that they occur in different months in different years, and in periods of quite different weather (e.g., in December and July) in the same year. The same is true of the months of minimum earnings. According to the simple rules of inductive logic such a "seasonal" fluctuation is pretty definite testimony that fluctuations have nothing to do with the seasons as climate or meteorological phenomena; that the agencies responsible for fluctuations are to be looked for somewhere else than in the field of climatic conditions, and that finally the fluctuations are rather irregular to be styled "seasonal" in the proper sense of the word. Other tables and data given by Professor Hansen in his careful study, invariably, and even more conspicuously, show the above irregular characteristics of the so-called "seasonal" fluctuations of "investment composite," of "banking composite," and so on. See HANSEN, A. H., *Cycles of Prosperity and Depression in the United States, Great Britain and Germany*, pp. 15-16, 19, 27, 31, 32-33, 42, 58-59, Madison, 1921. The above remarks apply to a great many other economic and non-economic "seasonal" fluctuations. Apparently the "seasonal" fluctuations are simply "short time" fluctuations whose factors are to be found somewhere else than in climatic or meteorological conditions.

the vulgar modes of escaping from the consideration of the effect of social and moral influences on the human mind, the most vulgar is that of attributing the diversities of conduct and character to inherent and natural differences" (Mill's *Principles of Political Economy*, Vol 1, p 390) Ordinary writers are constantly falling into the error of assuming the existence of this difference But while such original distinctions of race are altogether hypothetical the discrepancies which are caused by differences of climate, food and soil are capable of a satisfactory explanation ⁵⁵

After this Buckle proceeds to show how geographical agencies have produced the most substantial differences among various societies, in bodies, in minds, in social organization, and in historical destinies For him, as for many others, especially earlier geographers, racial differences, either in a greater part or entirely have been due to differences in environment and especially in geographical conditions In this extreme form the theory may scarcely be sustained by any serious geographer of the present, but in a somewhat milder form it is supported by a great many partizans of this school One of the best examples is Dr Ellen Churchill Semple's *Influences of Geographic Environment On the Basis of Ratzel's System of Anthropo Geography* (N Y, 1911) In this volume a long series of physical characteristics of man are attributed to the direct and indirect influences of geographic environment (differentiation of human races under the influence of different geographical environments, differences in stature, in pigmentation, in thickness of skin, in the character of hair, in size of chest and so on) ⁵⁶ Following many of her predecessors and especially Ritter and Ratzel, the author, in a somewhat milder form, tries to show by several examples the validity of her principal correlations Many other authors in a more technical and more competent, but in a narrower form, support the same thesis of a correlation between geography and racial characteristics in the zoölogical sense of the term As examples of such theories I may mention those of J A Allen,

⁵⁵ BUCKLE, H T, *Introduction to the History of Civilization in England*, New and Revised Edition by J M Robertson, p 22 London, Routledge

⁵⁶ See SEMPLE *op cit* Chap II and *passim*

W Ridgeway, A Keith, F Boas, and others ⁵⁷ To what extent are all these claims valid? Are they corroborated by the facts or are they still in the stage of purely tentative hypotheses? Let us discriminate briefly between the valid and invalid portions of these claims. In the first place, the assumption of many of these authors of the so-called monogenic theory of human origin and of a later differentiation of mankind into different races under the influence of different environments, is a mere guess. This, as well as the opposite or polygenic hypothesis, is and probably will remain a mere guess, which cannot be proved or disproved ⁵⁸ For this reason this argument of the geographers and environmentalists in favor of their theory cannot have any scientific value ⁵⁹

There is another point which greatly weakens the position of the geographers in this field. Racial characteristics in a proper sense of the word are those which are inherited. The assumption that such characteristics may be altered by the geographic environment and, being altered, become hereditary traits, supposes the possibility of the inheritance of acquired traits. This as it is known, is a presumption which is still denied by the majority of the biologists. Therefore the theory of the alteration of racial traits through direct influences of geographic factors at the very best is based on a very uncertain and questionable foundation. Until the theory of inheritance of acquired traits is proved we cannot admit the possibility of a modification of racial, that is, of hereditary traits under the direct influence of geographic conditions. Alteration of these traits through amalgamation and similar factors, does not belong in the category of geographical

⁵⁷ See ALLEN J A, "The Influence of Physical Conditions in the Genesis of the Species," *Smithsonian Annual Report for 1905* Wash 1906 RIDGEWAY W, *The Application of the Zoological Laws to Man*, *Nature* Vol LXXVIII, 1908, KEITH, A, "On Certain Factors Concerned in the Evolution of Human Races," *Journal of the Royal Anthropological Institute* Lond, 1916 Vol XLVI and KEITH, A, 'La différenciation de l'humanité en types raciaux' *Revue générale des sciences*, Paris, 1919, 30^{me} année. Dr Franz Boas has stressed, not so much the influence of geography as environment in general and especially social environment upon the bodily characteristics of man. See BOAS, F, *The Mind of Primitive Man*, 1911, *Changes in Bodily Form of Descendants of Immigrants*, Wash, 1911.

⁵⁸ See SERGI, G, *Le origine umane*, Torino, 1913. DIXON, R. B, *The Racial History of Man*, pp 503 ff, New York, 1923.

⁵⁹ E Ch Semple, like many other environmentalists, writes without any serious reason that 'the unity of the human species is clearly established.'

determinism and for this reason cannot be used as an argument in favor of their theories

In the third place, almost all serious theories which advocate the possibility of the modification of racial characteristics through geographical agencies recognize that this is possible only in a long course of time, hundreds and thousands of years are necessary for a given racial type to be considerably changed under the direct influence of geographic factors⁶⁰ If this is so it means that geographic environment works so slowly that it is practically of no significance as an explanation of racial modifications in the course of the history of a population which rarely goes back beyond two or three thousands of years It is of still less importance for an explanation of the biological changes of a population and of its historical destinies for a shorter period of time computed by tens of years It is true that we have some very valuable attempts to prove the possibility of a modification of racial characteristics within a short period of time Among such attempts Professor Boas' study of the bodily changes in American immigrants and R M Fleming's study are possibly the best But Dr Franz Boas ascribes the modifying role not so much to the geographic as to the social environment Besides, his conclusions have been met with such strong criticism on the part of the prominent specialists, and their objections are so serious that at the very best the results of Boas' study are to be taken as inconclusive⁶¹

⁶⁰ See MORSELLI, 'Le razze umane e il sentimento di superiorità etnica,' *Rivista Italiana di Sociologia* 1911, pp 331 ff 'Racial traits may change under permanent influence of environment, but hundreds and even thousands of years are necessary for such a transformation I do not know any single case of transformation of a race within one or two generations except the cases due to an amalgamation The environment of a race cannot modify quickly its physical and psychical characteristics As to the educational factor, it is absurd to expect it can change a race in a short period of time It is true that we see at the present a rapid change of the characteristics of a people, but scientific observation shows that such changes are of a psycho-social, but not a racial nature' See also DIXON, *op cit*, pp 479 ff, and *passim* DE LAPOUGE, V, *Les selections sociales*, pp 65 ff

⁶¹ See BOAS, FRANZ, 'Changes in Bodily Forms of Descendants of Immigrants,' *Senate Documents*, Vol LXIV, Washington, 1911 Miss R M Fleming's paper in *Man*, Vol XXII, pp 69-72 Among critical analyses of these works see especially SERGI, G, 'Influenza dell'ambiente sui caratteri fisici dell'uomo' *Rivista Italiana di sociologia*, 1912, pp 16-24 FLEURE H J and JAMES, T C., "Geographical Distribution of Anthropological Types in Wales," *Journal of the*

In connection with the progress in the study of the rôle of glands, especially the ductless glands, in the formation of man's body and physiological processes we have a series of attempts to explain through the alteration of gland activity by geographic environment, the changes in the racial characteristics of man. An example of such attempts is the theory of Sir Arthur Keith.⁶² At the present moment, there is no doubt that many body traits, stature, form of cranium, weight and so on, may be altered through modifications of the structure and of the functions of glands and especially of the ductless glands. But the point is that these glands, as a rule, are influenced almost exclusively through chemical ingredients consumed principally in the forms of food and drink (it is evident that surgical or medical modification of glands did not play any role in the past and even now they are quite insignificant means applying only to a very few individuals). This explains why a great many geographers even before the discovery of the rôle of glands pointed out that food was the most efficient geographical agency in the modification of physical and mental traits of a racial group.⁶³ I do not object to many facts of this kind but nevertheless serious reservations must be made against their use as arguments in favor of the geographical hypothesis.⁶⁴

In the first place not all kinds of food may be important in

Royal Anthropological Institute pp. 37-42 Vol. XLVI 1916 PEARSON K and TIPPETT L H C. On Stability of the Cephalic Indices Within the Race. *Biometrika* pp. 118-138 Vol. XVI 1924 C. Gini indicated several shortcomings in the statistical method used by F. Boas. General conclusions of the critics are typically represented by the following statement of Pearson and Tippett: "Dealing with a large amount of data we are unable to find any change of real significance in the cephalic indices for school children from 5 to 20 years old. The cephalic index is remarkably stable. Having regard to the fact that extraordinary environmental differences in this country appear to make no significant change in the shape of the head it is very difficult to accept Professor Boas' view that the child born to Jewish parents in Europe differs in head shape from the child born to the same parents after their arrival in America. The cephalic index of the Jews is much the same in the most diverse environment in Europe and we do not believe that anything but hybridization or long selective action can change the type."

⁶² See his works already cited. However, he strongly stresses the relative unchangeableness of racial traits.

⁶³ See e.g. Buckle's discussion of the problem *op. cit.*, Chap. II, *passim*. SEMPLE, E. *op. cit.*, Chap. II.

⁶⁴ See a further chapter about food as a social factor. See also the quoted book of Armitage, though he exaggerates the effects of food upon race.

this respect Only food and drink which are lacking in definite types of vitamins or contain definite ingredients may exert noticeable effects on glands and through these on the anatomical and physiological characteristics of the population Such deficient food is either a rare phenomenon (because the ordinary diet of different peoples generally contains all the necessary ingredients) or it is almost equally common among different racial groups and for this reason with few exceptions, cannot account for their bodily and other differences

In the second place what is more important, the geographers put food and drink among geographic agencies as though the food and drink (alcohol, wine, beer, etc.) are entirely determined for every society by its geographical conditions We have seen that even for a relatively primitive society such a correlation between its geographic conditions and the character of its food is far from being definite and rigid In regard to more advanced and complex societies this correlation is so insignificant that there is almost no serious reason for such a claim What and how much society eats and drinks is determined not only and, in many cases not so much by the geographic, as by other factors Therefore to include all the effects of the quantity and the quality of food and drink on the population as the effects of geographic conditions is fallacious We must discount a great many cases of such modifications of bodily traits through the agency of food as arguments for geographic conditioning If this is done, very few of the modifications due to food may be classed as geographic factors For the same reason Keith's gland theory of the modification of races cannot be used as corroborative evidence of the geographic theory of race determination

In the fourth place the geographic theory of race determination is far from being corroborated by factual observation If its claim of rigid correlation between the kind of geographic environment and the character of races were true, we should expect the existence of correlations between stature, pigmentation, cephalic and nasal indices and so on, on the one hand, and definite geographic conditions, on the other Corresponding studies and measurements do not fulfill this expectation For instance, the studies of Mendes Correa D N Anoutchin B A Gould Broca

Boudin, P. Topinard, R. Livi, J. Bertillon, G. Retzius, J. H. Baxter, Ch. B. Davenport, A. G. Love, and of several others did not find any correlation even between stature (a trait which is much more dependent upon environment and especially upon food than many real racial characteristics) and geographic environment or latitude, or altitude, or longitude, or geological conditions, or flora and fauna, or even the character of food and of other geographical conditions of society.⁸⁵

The same is true in regard to the character and the length of the feet and arms, the pigmentation, dolichocephaly and brachycephaly, and the color of hair and eyes and body. The attempts to correlate these characteristics with a definite geographical environment or its components have not yielded any positive results. "Thus it is not sufficient to talk of environment in explanation of evolution; it is necessary also to take into consideration inner conditions of equilibrium of an organism and organic correlations."⁸⁶ Such results are unfavorable for the validity of the geographic theories. The geographers, however, may object that migrations and race-blending naturally led to a disappearance of

⁸⁵ See GOULD, B. A., *Investigations in the Military and Anthropologic Statistics of American Soldiers*, pp. 131-132, N. Y., 1869. MENDÈS-CÔRREA, A. A., "Le milieu géographique et la race," *Scientia*, 1921, 30: 371-80; see his data and references; see also MITCHELL, P., *Le Darwinisme et la guerre*, Paris, 1916, pp. 67 ff. "It is impossible to establish a correlation between pigmentation of hair and eyes and an environmental factor of any kind," p. 69. ANOUTCHIN, D. N., *Geographical Distribution of the Stature of the Male Population of Russia* (in Russia), St. Petersburg, 1889; RETZIUS, G., and FÜRST, C. M., *Anthropologia, suecica*, p. 60, Stockholm, 1902; LIVI, R., *Antropometria militare*, Vol. I, pp. 48-49, Roma, 1896; BROUËL, "Recherches sur l'ethnologie de la France," *Mémoires de la Société d'Anthropologie de Paris*, 1866. As a matter of fact not a single large anthropometric measurement of the population of various countries has discovered the discussed correlation or has accounted for the distribution of various physical traits in the population through geographic conditions. The same is true of the recent measurement of the American Army. See *Army Anthropology* by CHARLES B. DAVENPORT and A. G. LOVE, Washington, 1921, *passim*.

⁸⁶ *Ibid.*, p. 380. "There is almost no reason to suppose that the cephalic index is under a direct influence of an environment; it appears to be a hereditary character of a race," concludes such a prominent zoologist as P. Ch. Mitchell. See his *Le Darwinisme et la guerre*, pp. 67 ff. Not convincing is also a recent attempt to correlate man's nasal index with climatic conditions. The nasal indices of various races which for thousands of years dwell in the same climate remain different and the nasal index of the same race whose members dwell in different climates remain essentially the same. These facts make the correlation very questionable. Vide THOMSON, A. and BUXTON, D., "Man's Nasal Index in Relation to Certain Climatic Conditions," *Journal of the Royal Anthropological Institute*, Vol. LIII, 1923.

the correlations between geographic conditions and racial characteristics of a population at the present time. Through migrations and blending racial groups with definite characteristics shaped by their geographic environment in the past have been dispersed throughout the most different areas and naturally do not exhibit any correlations. Unfortunately for the geographers such correlations are difficult to establish even for the past. Whatever may be the basis of the race classification, one fact seems to be certain: each racial type from immemorial times happens to have been dispersed and living in the most different areas. If for instance we take the eight fundamental racial types according to the classification of Professor Dixon, each of these types seems to have been distributed in the south and the north among the most different geographic conditions.⁶⁷ In other words we cannot find even in the past a period in which we would certainly have had a principal racial type confined within a definite uniform geographic environment. This means that even for the past such correlation between geographic conditions and a definite racial type seems not to have been found.⁶⁸ This makes the validity of the theory still less convincing. Finally we do not have any single case in which we have observed a change of racial characteristics under a different environment. The Nordic whites have been living in tropical regions for generations and still remain white in spite of the different climate. They do not show any sign of transformation in the direction of the black races.

We can observe no difference in skin color between the American negro and his kinsman in Africa: the one is as black as the

⁶⁷ See DIXON *op cit* pp. 311 and chapter General Conclusions pp. 475 ff. Instead of Dixon's classification we may take others and the wide geographic dispersal of all the principal types remains the same. See for instance HADDON A. C. *The Races of Man* SERGI G. *Hominidae* 1911 DENIKER, J. *The Races of Man* 1900.

⁶⁸ There are plenty of guesses concerning the place of origin of many racial types and from which they spread. But these hypotheses are mere guesses: they are contradictory; they also show that each type has lived in the most different areas and remained unchanged in spite of quite different geographical conditions (contrarywise it would have been impossible to say that the Proto-Negroid type inhabited Europe if the skulls and skeletons found there were changed). Finally the theories which admit hypothetically a modification of a type under the influence of different environments (e.g. depigmentation of black race in the region of Baltic sea) are mostly guesses and require time computed by millennia. See DIXON *op cit* pp. 479 ff.

other, although the American negro is no longer living in tropics ⁶⁹ All we have are changes of some non hereditary or non racial traits Such changes may take place under the direct influence of geographic environment but they have nothing to do with a direct change of racial characteristics

The above seems to be sufficient to show that the claims of the geographers are greatly exaggerated that in regard to a change of real racial characteristics under the direct influence of geographic environment their theory is very questionable as yet and not proved

All that remains as relatively valid from these theories is as follows First some somatic and physiological characteristics of a population which are not hereditary may be changed under different geographic conditions Second in the course of millennia racial traits may be changed through geographic factors but this is not yet proved and if it were proved it can help very little in deciphering the great changes in the biologic composition of the population which have taken place in the historical eras and much shorter periods of time Third many somatic changes due to environmental agencies cannot be ascribed to geographical agencies but should be ascribed rather to other than geographic factors Fourth geographic agencies seem to be able to influence the racial composition of the population only indirectly through natural selection After they are changed these conditions may facilitate survival of one type of human beings and be favorable to increased mortality of another type ⁷⁰ In this indirect way working through the medium of selection geographic factors seem to be efficient But even in this indirect way in view of the fact that social environment is more effective in many cases the efficiency of geographic factors working through selection may be easily overestimated

10 GEOGRAPHICAL CONDITIONS AND HEALTH

In the preceding paragraphs I touched the phenomena whose dependence on geographical conditions is relatively the most conspicuous I have not denied this dependence but have shown

⁶⁹ DIXON *op cit* p 480

⁷⁰ See the chapter Anthro-po-Racial and Selectionist School

that the correlation is very loose and very relative and tends to be obliterated in proceeding from the less to the more complex forms of society. Let us now turn to the more complex phenomena of human health, energy, behavior and psychology. In this field we have hundreds of geographical theories which attempt to prove the rigid dependence on geographical factors. Hundreds of pages would be necessary to outline and to scrutinize the thousands of "correlations" which have been formulated in this field. As a lack of space does not permit such a task, I shall proceed in a different way. I shall analyze the most elaborated "geographical theories" in this field and shall try to show to what extent they are valid. The results of such an analysis, with still greater reason, may be applied to all less elaborated "geographical generalizations." As a starting point for such an analysis I shall take the works of Professor E. Huntington (1876-), which are some of the best in this field. If his principal ideas are very old, his corroborations and discussions are new and more inductive and factual than those of many of his predecessors. The analysis of these works by the way, will give us an opportunity to mention and to discuss the results of many other studies in the field covered by Huntington. In his principal sociological works *Civilization and Climate*, *World Power and Evolution* and *The Character of Races*, Dr. Huntington has tried to show that climate is one of the most important factors influencing civilization. He tries to prove this by establishing a series of correlations between climate and health, between climate and energy and the efficiency of labor, between climate and mental processes as intelligence, genius, and will power, and, finally between climate and the character, growth, and decay of civilizations. In order to determine to what extent his fundamental idea of the conditioning of civilization by climate is true we must, at least very briefly, scrutinize the validity of his minor correlations between climate and health, energy and other mental processes.

Climate and Health —It is a very old idea that climate influences human health. In its essence the validity of the idea can scarcely be denied, especially in regard to extreme climates. But in this general form it is vague and meaningless. To become

more definite the theory must answer, at least the following questions Does climate influence human health through temperature, or through humidity, or through variability or through some other elements? What is the optimum point of climate for the most favorable human health in all respects? Is such an optimum point the same for all human beings or does it vary from man to man and from group to group?

Long before the work of Huntington a series of works were published which tried to answer these questions on the bases of statistical and experimental investigations⁷¹ Some of these authors have tried even to formulate some general laws In regard to the death rate, which Huntington takes as the index of health, Moser formulated three "laws" nearly a century ago first, monthly curves of the death rate and temperature go together, the average and extreme points of both phenomena paralleling each other, second, the lower average temperatures are accompanied by the higher death rates, and *vice versa* third, a rise of temperature above normal in the winter reduces and in the summer, increases the death rate while a decrease of temperature below normal in winter and in summer has correspondingly opposite results⁷² Huntington does not add any substantially new ideas to those of his predecessors except that he supplies new data for the corroboration of the climatic influences on health and attempts to point out the most favorable ("the ideal") climate for all human beings at all times This "ideal climate" is that with an average temperature of about 64° F of about 80° humidity and a relatively variable one⁷³ In this respect he follows (in regard to temperature) the theory of Dexter⁷⁴ In regard to the statistical data, supplied by Huntington one must

⁷¹ See e.g., MOSER, L., *Die Gesetze der Lebensdauer* Berlin 1839 CASPER J. I., "Der Einfluss der Witterung auf Gesundheit und Leben des Menschen" in *Denk würdigste zur medizinische Statistik*, Berlin, 1846 GRIS W. *Die Bevölkerungs statistik der Schweiz* Eidgen, Aarau, 1868 and FORRY, *The Climate of the U. S. and its Endemic Influences*, N. Y., 1842 See further the well known works in the statistics of population of G. von Mayr, E. Levasseur J. I. Wapjaus H. Westergaard, Oettingen, A. Newsholme and others where the fluctuations of death birth, and marriage rates according to seasons and temperature are discussed and analyzed. See also their references

⁷² MOSER, *op. cit.*, pp. 242 ff

⁷³ See *World Power*, pp. 71 ff, 85 98-99 *Civilization and Climate*, pp. 14-15

⁷⁴ See DEXTER, *Weather Influences*, p. 75 N. Y. 1904

confess that they compose an impressive series of figures and curves which appear very convincing. And yet a more detailed analysis of the data makes them much less conclusive. I would have to go too far astray from my purpose if I were to scrutinize them one by one in detail. Instead of this I can only briefly indicate the principal objections to the conclusive validity of Huntington's results.

A. In the first place although the death rate is one of the important criteria of health it by no means is unique and adequate especially when it is applied to countries of a different character. For instance Huntington without hesitation on the bases of different mortality rates of different countries concludes that countries like Russia or Serbia have poorer health than many European countries.⁷⁵ Meanwhile the question is much more complex. Countries with high birth rates as a general rule have a high death rate and those with low birth rates have low death rates.⁷⁶ High birth rate is a criterion of the vitality of a people no less important than the death rate.⁷⁷ Historical examples like Rome and Greece with their low birth rate at the period of decline testify that a low birth rate is likely to be a symptom of the decreasing vitality of a people. Therefore the countries which from the standpoint of death rate are very healthy from the standpoint of their birth rate may occupy an opposite rank. In the second place studies of death rates of different age groups in the countries with low mortality rates like England, Germany and France and in the countries with high mortality rates like Russia, Hungary and Bulgaria or Serbia have shown that the age groups above 30 and 32 years in the

⁷⁵ See HUNTINGTON *The Character of Races* pp. 231 ff. Fig. no. 13 N. Y. 1924.

⁷⁶ See recent figures in YULE H. U. *The Growth of Population* *Journal of the Royal Statistical Society* 1925 pp. 31-33. The correlation between both rates is +.81 1901-10, for 22 countries between their fluctuations +.70 or +.75.

⁷⁷ For this reason it is comprehensible why the most prominent statisticians use different formulas for measuring the vitality of people. The principal of them are D/\sqrt{B} (Sundbarg) (D = death B = birth) B/D (Brown Wernicke)

$\frac{100 B}{D}$ (R. Pearl J. S. Sweeney) and D^2/B (Rubin). Though even these formulas are far from being an adequate 'vital index' they undoubtedly are better than Huntington's criterion. See RUBIN M. *A Measure of Civilization* *Journal of the Royal Statistical Society* Vol. LX 1897. PEARL R. *The Vitality of the People of America* *American Journal of Hygiene* 1921. SWEENEY J. S. *The Natural Increase of Mankind* Chap. I Baltimore 1926.

countries with high mortality rates have mortality rates lower than the same age groups in England, in spite of the more hygienic conditions in this last country⁷⁸ This means, that even according to Huntington's own criterion, these more mature age groups in the countries with high mortality rates (due principally to an abundant proportion of children) must be recognized as healthier than the same age groups in the countries with low death rates (due principally to a low birth rate and therefore to a low child mortality) This also means that if we take as a criterion of health the death rate of the younger age groups, the different countries will rank one way and if we take the death rates of the age groups above thirty years, their ranks will be quite different, if not opposite In the third place, though the mortality rate of Russia is much higher than that of Germany or France, yet its population, on the basis of recent statistics, (before the Revolution) was proved to be better and healthier than the population of practically all other European countries with much lower mortality in the years from 1890 to 1894, out of 772,000 Russian recruits only 18 per cent were entirely unsuitable while in Germany this per cent was 62, in Russia the proportion of suitable recruits was 35 per cent higher than in Germany and in the majority of other European countries, though the Russian requirements in regard to health were somewhat higher than in those other European countries⁷⁹ This shows again how inadequate a criterion of health is the general death rate Its inadequacy becomes still greater if we take into consideration that in Germany (and the same phenomenon has been

⁷⁸ See SCHALLMAYER, W., 'Eugenik, Lebenshaltung und Auslese,' *Zeitschrift für Sozialwissenschaft* Bd XI Hefts 5-8, 1908 PRINZING, FR., 'Kulturelle Entwicklung und Absterbeordnung' *Archiv für Rassen und Gesellschafts Biologie* Bd 7, 1910 pp 579-605 RÜDIN, E., *Über Zusammenhang zwischen Geisteskrankheit und Kultur* *ibid.*, pp 722-748 See also MACDONEL, W. R., 'On the Expectation of Life in Ancient Rome,' etc., *Biometrika*, Vol IX, 1913

⁷⁹ See SCHALLMAYER *op cit* CLAASSEN, W., 'Die Abnehmende Kriegstüchtigkeit,' etc. *Archiv für Rassen und Gesellschaft Biologie*, Vol VI, 1909 pp 73-77, CLAASSEN W., 'Die Einfluss von Fruchtbarkeit,' etc., *ibid.*, pp 482-492, see also his other paper, *ibid.* pp 129-132 The reason for this phenomenon is that, due to the high death rate among the children, all weaklings are eliminated in Russia and only strong people survive to the age of 21 and above, while in countries with a low birth rate and a low mortality a much greater per cent of the weaklings survive This explains the lower death rate of the age groups above 30 years in the less civilized countries.

shown in other European countries), between the end of the nineteenth century and the time of the World War the death rate was declining while the per cent of biologically defective people among the population and recruits was rather increasing.⁸⁰ A series of similar facts could be given, but the above show how conditional and relative and inadequate is the criterion of health chosen by Huntington.⁸¹ For these reasons, at the very best, Huntington's data show only the dependence of the death rate, and not that of health on climate.

B Furthermore, many of Huntington's data on the fluctuation of the death rate concern not the aggregate death rate but that from influenza and pneumonia.⁸² It is evident that deaths from influenza and pneumonia are more dependent on the weather than other forms of death, therefore it is rather fallacious to make the movement of the death rate from pneumonia typical for that of the aggregate death rate.⁸³

C Furthermore Huntington treats the seasonal and yearly movement of the death rate rather roughly.⁸⁴ If there appears even a remote parallelism between the fluctuations of the death rate and temperature or humidity, he contends that the fluctuation of the death rate is the result of that of climate. However we know how doubtful such a method is. E. Durkheim in his analysis of the factors of suicide has shown convincingly how unreliable such conclusions are even in the field where the parallelism between the fluctuations of climate and suicide is much more

⁸⁰ See the figures in the papers of Claassen, Schallmayer, and Prinzing. Also see, for England, *Report Upon the Physical Examination of Men of Military Age by National Service Medical Boards*, London, Febr., 1920. In France this phenomenon is still more conspicuous.

⁸¹ Later on we shall see how this inadequate health criterion of Huntington makes many of his theories questionable. Among them his attempt to explain the differences in death rates of different countries through the influence of climate is especially fallacious. See his *The Character of Rates*, Figs. 12 and 13, pp. 231 ff.

⁸² See HUNTINGTON, *Civilization and Climate*, Chaps. VIII and IX, New Haven, 1924.

⁸³ The movement of deaths from influenza, pneumonia, and tuberculosis is not identical with the monthly movement of all causes. See WHIFFLE, G. C., *Vital Statistics*, N. Y., 1923, Tables 58, 86, 92, 96, Fig. 72, and others, *Public Health Reports*, Vol. XXXVI, pp. 1498-1501.

⁸⁴ In this respect I agree with Dr. Hexter who says that "he doubts Dr. Huntington's method. Dr. Huntington has utilized the graphic method of comparison. This method is liable to lead to false conclusions." HEXTER, M. B., *Social Consequences of Business Cycles*, p. 169, 1925.

striking⁵⁵ A Binet found that the appetite of pupils (in form of the amount of bread consumed) varied "seasonally" If he had followed Huntington's method, he would have accounted for the fluctuation through climatic factors Fortunately Binet does not follow this "rough" method, and in the process of analysis he shows that the responsible factor is not climate but intellectual school work⁵⁶ For serious reasons we may question the validity of the causal connection between many curves of the death rate and climatic factors which Huntington attempts by his "rough" method The fact that both curves in selected cases are parallel to some extent is not sufficient to prove their interrelations are causally or functionally connected This is somewhat corroborated by the data of Huntington himself In the first place, several of his curves intended to show the parallelism (positive or negative) of fluctuations of the death rate and climate causes (e.g., Figure 7 p 62 in *World Power and Climate*), show such a 'loose parallelism' that only by considerable leniency is it possible to say that the curves prove anything

D At the basis of Huntington's theory lies the questionable presumption that short time fluctuations of the death rate ("seasonal fluctuations") are due to climatic—"seasonal"—factors As I indicated above such a presumption is not necessarily correct Only when these "seasonal" fluctuations parallel climatic fluctuations from year to year when they rise or fall uniformly with uniform fluctuations of temperature and when identical temperature movements at various times and in various countries are followed by identical movements of the death rate, only then is it possible to account for such 'seasonal' fluctuations of the death rate through meteorological factors When such characteristics are absent we have no reason to suppose that the meteorological factors are responsible for such 'seasonal' fluctuations Meanwhile the data concerning the "seasonal" fluctuations of the death rate do not show the above characteristics All they show is the existence of short time fluctuations whose factors are to

⁵⁵ See the classical criticism of such procedures in DURKHEIM E., *Le suicide*, Chap. III, passim Paris, 1912 See further his discussion of the correlation between suicide and geographical factors

⁵⁶ BINET A., *Consommation du pain*, *L'année psychologique*, 1897, Vol. IV, pp 337-355

be yet explained. The meteorological factors alone can account for very little of these fluctuations. Take, for instance, the months of the maximum death rate within a year or a series of years. In the same area they are different according to the various authors, and different in different years, and fall at quite different seasons with different meteorological conditions. For instance, according to Huntington, such months for Massachusetts are February or March, but according to Dr. Hexter, they are December and March.⁸⁷ According to Professor Whipple, in New York in 1910, the maximum months were March, April, and July, but in 1920, February and March.⁸⁸ According to Dr. Falk, for the registration area of the United States in 1919 the maximum month was January.⁸⁹ This irregularity of the months of maximum death rate only suggests that the death rate fluctuates within a year, but it does not permit us to conclude that the fluctuation is "seasonal" and due to meteorological factors. This suggestion is further corroborated by the data for "seasonal" fluctuations of the death rates in various countries. If these fluctuations were due to meteorological conditions we should expect that the months of a maximum death rate in the countries with a similar climate would be the same or nearly so, while in the countries with quite different climates they would be considerably different. Is such an expectation corroborated by the data? I am afraid it is not. For instance, the month of maximum death rate in the years from 1889-93 was January in Belgium, Prussia, Wurtemberg, Austria, Sweden, Buenos Aires and Scotland. Note the same month in countries with quite different climatic conditions. On the other hand, in European Russia it was August, in France, March, in Bavaria, March, in Italy, February, in Saxony, August, in Bulgaria, December, in Uruguay, December; and in Serbia, March. Note again the difference in the month of maximum deaths between Serbia and Bulgaria, or Bavaria and Saxony whose geographic conditions are far more similar than, for example, the conditions of Sweden and Buenos Aires. These data appear to marshal against the meteorological theory. The same characteristics are shown by the months of minimum death

⁸⁷ See HEXTER, M. B., *Social Consequences of Business Cycles* pp. 55 ff., 1925.

⁸⁸ WHIPPLE, G. CH., *Vital Statistics*, Tables 58, 86, 1923.

⁸⁹ FALK, I. S., *Principles of Vital Statistics*, p. 183, 1923.

rate in these countries June was such a month for Italy, Bulgaria and Massachusetts, July, for France, Rumania and Serbia, September, for Austria, Scotland, Norway, Sweden and Finland, October, for Belgium, Prussia, Bavaria, Wurtemberg, European Russia, Denmark, and Buenos Aires, November, for Saxony, May, for Rhode Island and Uruguay⁹⁰ This shows that the month of the minimum death rate, *e g*, October, was the same for countries with the most different climate, and *vice versa*, countries with a somewhat similar climate had different months of minimum death rate That is not all, however The monthly death rates in different years for the same country show that the curves are different from year to year, and the months of maximum, as well as of minimum death rate, shift one year such a month is January, another February or March, or July or December⁹¹ Such shifting is difficult to account for through climatic factors It indicates that the "seasonal" fluctuation is very irregular and possibly many other factors must be considered Further, if climate were such a decisive factor in the "seasonal" fluctuation of the death rate we should expect that the death rate of the months which are similar in climate would be somewhat similar, while the months with quite different climatic conditions would be different The figures, however, do not fully corroborate this expectation It is certain that the climate of August and December in Italy differs more than November and December, and yet the death rates of August and December are almost identical while those of November and December differ considerably The death rate in December and April in Wurtemberg is almost the same (1058 and 1056) in spite of a great contrast in climate while the death rates in December and November and December and January are considerably different (1058 for December, 902 for November, and 1141 for January), though climatic conditions of these months are more similar than those of December and April⁹² The statistics of the "seasonal" fluctuation of the

⁹⁰ See VON MAYR, *Statistik und Gesellschaftslehre*, Vol II, p 212 Freiburg, 1897.

⁹¹ Compare, *e g*, "Seasonal Distribution of Mortality in Massachusetts for 1910 and 1920," in WHIPPLE, *op cit*, pp 266 and 358 they show a very considerable difference The same is true of almost any other country

⁹² VON MAYR, *op cit*, p 212 For Massachusetts in 1910 the death rates in July, April, February and January are practically equal, while those of August and September (103 and 98) or April and May (107 and 97) differ greatly in

death rate in every country show these "miraculous" fluctuations evidently they do not agree with the climatic hypothesis. One more fact is to be noted. The "seasonal" fluctuations of the death rate show that their "seasonal" curves are different for different age groups: from 0 to 1 year, from 10 to 20, from 30 to 40, and so on. Each of the age groups of the same population has its own months of maximum and of minimum death rate.⁹³ Further, there are also conspicuous differences in the "seasonal" death curve for different occupational, economic, sex, even religious classes. These differences suggest still stronger that the so-called "seasonal" fluctuation of the death rate is not "seasonal" at all in the sense that it is conditioned by seasonal climate, but that it is only an irregular fluctuation in time whose factors remain as yet to be found. This brief discussion is enough to show that Dr Huntington simplifies the situation too much, that his hypothesis cannot account for much of the real character of these "seasonal" fluctuations, and that from these irregular fluctuations he infers too rashly that climatic agencies are the most responsible factors.⁹⁴

E. Huntington further says that in regard to health "humidity is of great importance" (*World Power* p. 84). However, the studies, statistical and experimental, of numerous other authors,⁹⁵

spite of more similar weather in these months than in July, January and April. See WHIFFLE, Table 36.

⁹³ See the figures for the age groups of Hessen, Oldenburg, Lubeck, Baden and Berlin in VON MAYR, *op. cit.*, p. 213.

⁹⁴ There is no need to say that if these 'seasonal' fluctuations cannot be accounted for through climatic factors, still less can they account for the trends in the curve of the death rate, e.g., a decrease of death rate in the Western countries during the last three decades, nor for the differences in the death rate among different societies (e.g., why Slavic countries as Russia, Serbia, and Bulgaria, have a death rate higher than a great many Western countries) nor for the sudden extraordinary changes of the death rate in the same society (e.g., a three- or four-fold increase in the death rate of Russia in the years of 1919-1921) nor for a difference in the death rate of various occupational, economic, religious, national, and other social groups which live in the same place and under the same climatic conditions. Since any climatic explanation of these substantial facts of the death rate is impossible, and since even the seasonal fluctuations cannot be entirely accounted for through climatic factors, we must conclude that Dr Huntington has overestimated their importance and that his correlations to that extent are questionable.

⁹⁵ See e.g. STECHER, L. IDA, *The Effects of Humidity on Nervousness and General Efficiency*, N. Y., The Science Press, 1916. See the description of other experiments in this volume. The experimental investigations of the New York State Ventilation Commission did not find any noticeable effects of humidity upon health. Similar results came from the careful study of the Committee on the

either did not find any noticeable effects of humidity on health or on the death rate, or to the contrary, found the opposite effects from those of Huntington. For these reasons the conclusions of Huntington remain, at the best, inconclusive.

F If we take the results of what Huntington styles "a most conclusive study of the general effects of the weather upon health," they exhibit rather an embarrassing "correlation." The author took the monthly deaths from 1900 to 1915 inclusive in thirty-three cities of the United States with a population of over 100,000. These same sixteen months were divided into two groups according to their temperature: the eight warmest and the eight coldest, and the difference in the death rates of these two groups was computed. The results are as follows:

The eight warmest Januaries in New York averaged 60° F warmer than eight coldest, and had fewer deaths by 0.6 per cent. In February the excess of temperature in the eight warmest months amounted to 6.5° and their death rate was 4.1 per cent less than that of the cooler months. In March the corresponding figures were 6.4° and 9.7 per cent, in April 3.8° and 4.5 per cent, in May, on the contrary, an excess of 3.5° in temperature was accompanied by a death rate 1.5 per cent greater in the warm months than in the cool months, while in July, although the eight warm months averaged only 2.8° above the eight cooler months the excess in their death rate rose to 14.2 per cent.⁹⁶

I am inclined to think that these data prove either too much or too little, on the one hand it is too much to have an increase of the death rate by 30 or 14.2 per cent on account of differences in

Atmosphere and Man of the National Research Council of the U. S., and of the Metropolitan and the New York Life Insurance Companies. The results of those investigations which found some effects (Greenberg, Besson, Huntington, W. E. Watt, Goldsbury, P. W. and H. M. Smith) either concern a specific form of death from diseases of the respiratory organs where the correlation is likely to exist, or are discordant and often contradictory to each other. See HUNTINGTON, *Civilization and Climate*, Chaps. VIII and IX. BESSON, L., *Relations entre les éléments météorologiques et la mortalité*, *Annales des services techniques d'hygiène de la ville de Paris*, 1921. WATT, W. E., *Open Air*, Chicago 1910, GOLDSBURY, P. W., "Humidity and Health," *Boston Medical and Surgical Journal*, September, 1911.

⁹⁶ *Civilization and Climate*, p. 205. In *World Power* Huntington gives more detailed data for the months of March and July from which it follows that "a difference of 7° F. in the average temperature of July is accompanied by a difference of nearly 30 per cent in the number of deaths." *World Power*, pp. 60-61.

temperature of 7°F or 28°F , on the other hand it is too little that in some months (Januaries) the difference of 6°F produced only 0.6 per cent difference in the death rate. It appears to one who is not a specialist in mathematical methods that these inconsistencies reduce the significance of the correlation. This conclusion is still further corroborated by the fact that in some cities storms or a rise of temperature in the winter were found to be beneficial for health while in other cities (Chicago, Denver, Pittsburgh) this effect is absent that some cities like New York are unusually regular in their responses to the weather while in other cities like Cleveland and San Francisco departures from the normal (climate) produce relatively little effects.⁹⁷ Add to this the fact that all these data are not absolute but are departures in percentages from the normals and that the normals are the estimated numbers of deaths that each place would have experienced per month in any given year if the number of deaths changed regularly in response to the growth of the city and the improvements in medical practice further the great difficulty in making such estimates objectively (the author does not say how he measured the growth of the city and improvements in medical practice) and the inevitableness of some degree of subjectivity in such complex estimations add finally that the data were smoothed when all this is considered the significance of the data appear quite doubtful. If they prove anything it is only that the death rate varies at different rates in different months and in different cities and that very much of the causes of such fluctuations yet remains to be found. These objections are made on the bases of the data given in the book. If now we make a comparison in space and time of the death rate variation of different places and times and seasons we may easily see that the results are very discordant and contradictory. It is not possible to say that everywhere and for all time the death rate is the lowest in the climate with a temperature of about 64°F and with a considerable but not an excessive humidity as Huntington believes he has established.⁹⁸ I believe that Dr. Huntington has overestimated the significance of his results.

⁹⁷ *Civilization and Climate* pp. 205 ff.

⁹⁸ Even the data on death rates in different seasons given by Huntington show that the maximum death rate in New York City falls not in the month whose

These brief remarks show that the greatest certainty in regard to the influence of climate upon death rate is that excessive temperature or humidity or storms are likely to be harmful to health and to increase the death rate. But the space between the two excessive points too warm or cold too dry or humid and so on is large and the limits of excess seem to be different for different peoples besides these factors may be neutralized by the interference of different social factors. For these reasons even in regard to an excessive climate there is a great deal of uncertainty.⁹⁹ The attempts to prove a very much closer correlation within the excessive limits between variations of climatic agencies and the death rate in spite of the abundant material of Dr E. Huntington are inconclusive not to mention the fact that death rates are inadequate criteria of health. Let us now pass to the second fundamental correlation which Huntington tries to establish.

II CLIMATE AND HUMAN ENERGY AND EFFICIENCY

The next fundamental correlation which Huntington attempts to prove is that climatic agencies such as temperature storminess humidity and light have a strong influence on human energy and

average temperature deviates the greatest degree from 64° F. as is the case for December November January and February but in other months (July) on the other hand the minimum death rate is not in June or August whose average temperature is the nearest to 64° F. but in November and October. Verification of the theory of the ideal climate by the data of death rates of different countries in different seasons does not furnish corroboration of the theory of Huntington. The fact remains that the death rate is not lowest in the months nearest this ideal climate and is not the highest in the months which differ most from this ideal climate. Furthermore the people do not seem to choose their habitation in an agreement with the ideal climate of Huntington. The table of the density of population in the United States according to the zones of average temperature shows that the most densely populated zones have an average temperature from 45° to 55° F. the next place belongs to the zone with the temperature between 55° to 60° F. only third place is given to the zone with a temperature from 60° to 65° which being the nearest to the ideal temperature of Huntington ought to be inhabited the most densely. See the table on page 108.

⁹⁹ Professor R. Ward quite correctly stresses the complex and therefore in definite character of the influences of climate upon health. Numerous studies (in this field) have often led to very contradictory conclusions. Rules previously determined as the result of careful investigation often break down in a most perplexing way. He also stresses the fact that many alleged effects of climate on health are in fact due to factors other than climate. See WARD R. *op cit.*, Chap. VII.

efficiency. He finds the best outside temperature for efficient physical work is about 64° F (about 70° at mudday, and 55° at night), for mental work it is about 38° or 40° F, and that humidity also influences the efficiency of work, excessive dryness or dampness being harmful while a relative humidity of about 80 per cent is a facilitating condition. Changes in climate (storms, wind, temperature, and so on), when they are not too great, are favorable, while too great changes or constant climatic conditions are unfavorable. Light alone seems not to have an important effect on efficiency. These are the principal conclusions obtained by Huntington¹⁰⁰ and all are based on numerous data.¹⁰¹ Let us glance at the validity of Huntington's correlations. His first argument is that the efficiency of the farmer of the southern part of the United States, measured by the amount of improved land and the value of farm products, is less than that of the farmers of the northern parts (*Civilisation and Climate*, p. 38 ff). The argument might be questioned so many factors affect the amount of improved land or the value of farm products that it is rather strange how such a careful investigator as Dr. Huntington can even use such data as a proof of the effects of climate on efficiency. He has made a fundamental statistical fallacy in that he tried to solve a problem of multiple correlation by the use of inadequate methods of gross correlation. He has completely ignored many principles of economics which deal with the combinations of factors of production of market price and valuations of real property. A second factor is the neglect of allowances for types of soil and drainage. Many of the farms in the southern states (comparison A) are swampy land and thus affects the averages. A third neglected factor is that of rainfall. Rainfall in the southern states, with its consequent erosion of the lighter soils in the east as well as the heavier soils in the piedmont and mountain territories, forbids the clearing of land in a great many cases. If Professor Huntington knew the extreme difficulty of even securing straight roads under the enormous erosion of southern

¹⁰⁰ See *World Power*, pp. 71-85 ff., 98-99. Chaps. V and VI. *Civilisation and Climate*, pp. 14-15. Chap. VI and *passim*.

¹⁰¹ See also BUCKLE H. T. *Introduction to the History of Civilization in England*, Chap. II. Buckle and his predecessors developed correlations similar to those of Huntington.

rains he would not cite the absence of cleared land as an evidence of the effect of climate upon the energy of southerners. A further factor is that of the type of farming connected with types (chemical) of soils. Much of the area in the eastern parts of the north furnish milk for the cities. The soil is heavy and possesses sufficient lime for pastures. Farmers can use it for grazing and at the same time it passes for cleared land under the census classification. In the eastern parts of the south much of the soil is acid and will not support the ordinary lime-requiring grasses. Neither is it needed for grazing. His comparison B is mainly between a portion of the great cornbelt and the forest regions of the Lake States, on the one hand, and the mountain and southern coastal plain states, on the other. Differences in climate and farming systems affect the need for farm improvements and building and machinery. To explain all these differences by the effects of climate on energy is liable to be extremely fallacious.¹⁰² On page 39 Huntington gives figures which show that regardless of any climatic changes the value of the total farm property of the south erners has increased between 1900 and 1920 from 28 to 64 per cent in its per cent of the value of northern farms. Does this not refute the validity of the climatic factor in this case? Between 1900 and 1920 the average value of the southern negroes' farms increased almost twice (from 11 to 20 per cent), while that of the northern negroes' increased from 59 to 74 only. Will climate explain this? In this case I think that a plain real estate dealer may supply us with a more scientific explanation of these contrasts in the value of the southern and northern farms, and in their changes and fluctuations, than the hypothesis of Dr Huntington.¹⁰³

¹⁰² For a verification of these statements I am indebted to Professor Carl Zimmerman.

¹⁰³ Using Huntington's method it is possible to claim that the southern climate is more favorable for efficiency because, in the periods from 1900 to 1920, the large cities situated along the line from Superior to Galveston show a greater per cent of growth of population the farther south the city. Mr Frank Hayes kindly supplied me with data which show the following per cents of increase of population of these cities from 1900 to 1920: Superior and Duluth, 65 per cent, St. Paul and Minneapolis, 88 per cent, Des Moines, Iowa, 104 per cent, Kansas City, 145, Dallas and Fort Worth, 283, and Houston and Galveston, 123 per cent. Following Huntington's method it is possible to infer that the southern climate is more favorable to efficiency of work than the northern climate. It is not necessary to add that such an inference is as fallacious as those of Huntington.

Other corroborations given by the author in Chapters II and III of his book appear of no more validity to me. They are either statements based on quite incidental fragmentary, and questionable observations or data which testify against the author's hypothesis (death rates in Panama and other cities, sexual licentiousness of white men with tropical natives and so on). The data concerning the seasonal fluctuations of efficiency of work of factory operatives and students and so on which Huntington gives in Chapters IV V and VI of his *Civilization and Climate* have an incomparably greater scientific significance. However, even their significance is far from being convincing or conclusive. My principal reasons for this statement are as follows. In the first place Huntington's inductive method is too 'rough.' He noticed that the efficiency of several hundred workers was low in December and January that it rose from February to June declined in July and August and rose again and reached the maximum in October and November. On the basis of this fact he made a few dogmatic remarks that such fluctuations could not be caused by other than climatic factors—and concludes that it must be entirely due to climatic agencies. (See Chap IV.) Such a procedure is far from being inductive.¹⁰⁴ In the second place, looking at the curves from different years and different factories (Figures I and II pp 84 93-94) I see only a remote parallelism between them and in some cases there is even no parallelism at all (e.g. curves G and H in Figure 8 p 124). In the third place Huntington's curves testify against his fundamental statement that the optimum point of temperature for physical work is about 64° F. His Figure I shows that the maximum of efficiency of the operatives for all years was in October and November when the temperature was between 40° and 55° F but not in June or September when the average temperature was about 64° F. In the fourth place Huntington mentions only a very few investigations of this kind. Meanwhile there exist considerable numbers of such studies including among them several carried on

¹⁰⁴ As an example of this "correlation" we may take the figures on page 117 of his book. The difference in severity of heat between 1910 and 1912 is only two points (50 and 52) while the difference in deficiency of work is 50 points. I am afraid that such proofs prove too much.

with exclusive carefulness¹⁰⁵ Comparison of the results obtained by these studies with those of Huntington, shows There is no uniformity in the influence of the seasons upon the efficiency of working people, in some industries and factories efficiency declines in the summer, and in others situated in similar climatic conditions, it increases For instance, the seasonal curve of an output in five tin plate factories, studied by Dr Vernon, is opposite to Huntington, besides, the curves of each of the five factories are considerably dissimilar¹⁰⁶ The same is true in regard to other seasons

It is rather fallacious to try to find a uniform influence of temperature or of seasons upon all workers, of all ages, of both sexes, and so on, as is done by Huntington Careful analyses of Bernays, Weber, Bienkowsky, Schmitz, Vernon, May, Smith, and the Industrial Fatigue Research Board, show that different categories of operatives in the same factory are reacting differently to climate In Bernay's study, for instance, the efficiency of work of the male operatives under 40 years of age declines in the spring, while that of the operatives above this age increases, though generally the differences between the efficiencies of different seasons are very slight In a similar way, the efficiencies of the male and female operatives, of the qualified and unqualified single and married, urban and rural born, are affected differently by spring The same is true in regard to other seasons¹⁰⁷ These works disclosed further the existence of a much more conspicuous and more regular fluctuation of efficiency of work within the hours of a working day, and within the days of a week To see in these, as well as in the "seasonal" fluctuations, the direct effects of climate, or to account for them principally through climatic

¹⁰⁵ See for instance, WEBER, MAX, "Zur Psychophysik der Industriellen Arbeit," *Archiv für Sozialwissenschaft*, Bd 28 BERNAYS, MARIE, Untersuchungen über die Schwankungen der Arbeitsintensität etc., in *Schriften des Vereins für Sozialpolitik* Bd 135, Dritter Teil, Leipzig 1912 BERNAYS MARIE, 'Gladbacher Spinneren und Weberei' in the same *Schriften*, Bd 133 Leipzig, 1910 SCHMITZ, WALTER, 'Regelung der Arbeitszeit und Intensität der Arbeit' in *Archiv für exacte Wirtschaftsforschung*, Bd 3, Heft 2 *The Reports of Industrial Fatigue Board*, Nos 1-22, WILSON, D R, "On Some Recent Contributions to the Study of Industrial Fatigue," *Journal Royal Statistical Society* July, 1923

¹⁰⁶ See VERNON, "The Influence of Hours of Work and of Ventilation on Output in Tinplate Manufacture," *Industrial Fatigue Research Board*, Report No 1

¹⁰⁷ BERNAYS, "Gladbacher Spinneren," pp 397 ff., see here figures and data. See also the above works of M Weber and others.

agencies or to ignore the non climatic factors is impossible In the light of these results the sweeping conclusions inferred by Huntington from his data can pretend in no way to be conclusive This conclusion is reinforced by the results of a series of experimental studies of the influence of different climatic factors upon several physiological processes and physical activities of man The net result of these various studies is discordant and contradictory For instance the growth of weight of 1200 tubercular patients at Saranac Lake given in *Civilization and Climate* (Figure 2a curve A) is opposite to the seasonal curve of growth of weight of 130 boys in Copenhagen studied by Malling Hansen¹⁰⁸ and that of several thousand children in Boston the results obtained by Dr Winifred Hall and G Stanley Hall concerning the same question differ somewhat from the results of both preceding studies¹⁰⁹ Similar discordance came from the results of the studies of fluctuations of muscular strength in connection with the fluctuation of climatic agencies Two experimental studies of Schuyten yielded results considerably different¹¹⁰ both of these results are different from Porter's and from those obtained by Lehman and Pedersen¹¹¹ and then all are somewhat different (according to months) from the results yielded by the study of A H Peaks and L L Kuhnes¹¹² Besides in Peaks study two groups of the children tested have shown seasonal fluctuations of strength not quite identical¹¹³ The experimental work of L J Stecher concerning the influence of humidity on various muscular performances yielded no definite results We find no evidence that average performance (of hand steadiness aiming tapping) are adversely affected by dryness¹¹⁴ Similarly no re

¹⁰⁸ MALLING-HANSEN *Perioden im Gewicht der Kinder und in der Sonnenwärme* Copenhagen 1886 Fragment III A and B PORTER W T The Seasonal Variations in the Growth of Boston School Children *American Journal of Physiology* May 1920 Huntington gives figures not seeing that they decidedly contradict his curve of seasonal health Compare *Civilization and Climate* pp. 154 and 158

¹⁰⁹ See PEAKS ARCH H *Periodic Variations in Efficiency* Baltimore 1921 p 7

¹¹⁰ See SCHUYTEN M C Über Wachstum der Muskelkraft bei Schülern während des Schuljahres *Zeitschrift für Psychologie* Bd 23 p 101 and *passim*

¹¹¹ LEHMAN A and PEDERSEN R N Das Wetter und unsere Arbeit *Archiv für gesamte Psychologie* Bd X 1907 *passim* and pp 53 55

¹¹² PEAKS *op cit passim* and pp 32 91 KUHNES L L *Variations in Muscular Energy* an unpublished thesis for Ph D at N Y University 1915

¹¹³ See PEAKS *op cit* p 32 Tables for A and B divisions

¹¹⁴ STECHER *op cit* p 43 and *passim*

sults of temperature (68° , 75° and 85°) on strength were found in the experiments of the New York State Commission on Ventilation. The authors' theories as to the character of the effects of various climatic agencies are still more discordant. Besides, the studies show that the fluctuations of the strength of people of different ages and sex have a different and often an opposite character in the same season and under the influence of the same climatic change. Finally, when all these different curves of the fluctuation of strength in different months are confronted with the different curves of the fluctuation of efficiency of factory operatives in the same months, they are far from being parallel or coincident.

We shall not discuss the results of the studies of the fluctuations of respiration or the amount of hæmoglobin in the blood or of the growth in stature at different seasons. The results are of the same character as those of the fluctuations of strength and weight. Thus we must conclude that Huntington has not proved the case for "seasonal" curves of energy and that his theory of "the ideal climate" (for physical efficiency) is also questionable.

12 CLIMATE AND MENTAL EFFICIENCY

Let us now analyze the validity of the theories of Huntington and his predecessors concerning the influence of climatic agencies on mental work. The essence of Huntington's theory about this is that "mental work resembles physical but with interesting differences" the optimum outside temperature for mental work is about 39° F instead of 64° F, further, "when the temperature falls greatly, mental work seems to suffer more than physical, and declines as much as when there is no change. It receives a little stimulus from a slight warming of the air, but appears to be adversely affected when the air becomes warm rapidly" (*Civilization and Climate*, p. 142, also pp. 14-15).

The principal corroboration of this theory consists in the curve of mental efficiency based on the marks received by 240 students in mathematics at West Point in 1909-12, of 220 students in English at Annapolis in 1912-13, and of 1300 students in mathematics at Annapolis in 1907-13. The efficiency of typewriting of three children and a few data taken from some other investiga-

tions are also included. The proof of the theory consists in the fact that the curves of efficiency of the students fluctuate with seasons and in a somewhat similar manner they rise from September to November, decline from November to December, rise again from January or February to March or April, and then decline again. (See Figures 3 and 8 in *Civilization and Climate*, pp. 105, 124.) From these data and from the curve which shows that the marks are the highest in the days with a temperature of about 40° F, and some references to a few results obtained by other authors, Huntington concludes that his theory is proved, and besides, that physical and mental efficiency are of a similar nature with the exception of the differences mentioned above. This "proof" is far from convincing. Putting aside the question as to the validity of his method of estimation of mental efficiency on the basis of marks, especially when the marks are smoothed and somewhat modified in different ways,—on the basis of the data itself we are entitled to make the following preliminary criticisms. In the first place, the curves of seasonal efficiency of manual and mental work given in his Figures 3 and 8 do not permit the contention that seasonal fluctuations of both efficiencies are parallel. Beginning with the temperature of 39° F, mental efficiency begins to decrease while the physical efficiency increases up to 60° and 65° F. There is little parallelism here. In the second place, the efficiency curves of the work of the students and of the three children, given in Figure 8 (curves 9 and 1), do not show any parallelism. Curve 9 shows that the optimum point of efficiency is not 39° but 67° F. In the third place, this appears to be another pseudo induction in which a mere fluctuation of efficiency is attributed to climatic causes without any serious attempt at a functional analysis of the causes of the fluctuation. It is evident that marks of the students depend on many non-climatic factors and that, at least some analysis of these factors should have been made. Now let us consider the data outside of Huntington's book. Do they agree with his conclusions? Are they similar? Is there any basis of definite conclusions as to the influence of climatic agencies on mental processes? Let us briefly survey the situation.

E. G. Dexter's study of clerical errors and of the ability to

discriminate gave results different from those of Huntington the curve of clerical errors shows that they are the least numerous not at 39° but at 58° F, and only an excessive heat of above 77° F seems to be followed by an increase of errors. The curve discrimination does not show any noticeable correlation with fluctuations of temperature. Both mental processes showed quite an opposite fluctuation in correlation with barometric conditions. Low barometric readings are followed by few clerical errors but, on the other hand, the rapidity of discrimination is high under high barometrical conditions. His data concerning the influence of humidity, winds, and fair or clouded weather upon the curve of clerical errors and discrimination differ from Huntington's and from one another.¹¹⁵ The results of other studies of the dependence of mental processes upon climatic agencies are different and often contradictory. Two studies of Schuyten concerning the influence of seasons upon attention yielded discordant results, which are also different from Huntington's curves.¹¹⁶ Lobsien's studies of the seasonal fluctuation of primary memory have shown a fluctuation in different seasons heterogeneous with all the above curves.¹¹⁷ The Lehman and Pedersen study of the influence of temperature, light, barometric pressure, and seasons upon mental work of addition and on memory (*Gedachtnisleistungen*) found that first, each of these agencies affects the efficiency of these different psychical processes differently, second, that for addition the optimum temperature is different for two individuals studied, third, the optimum point for one is 44.6° F (7° C) and for another is 50° F (10° C). Both points are different from the optimum of 39° F in the study of Huntington, and fourth, the movements of the curves of addition and of temperature do not show any resemblance to the seasonal fluctuations of Huntington's mental efficiency curve. This study found results quite different from Huntington's on the optimum temperature for mental

¹¹⁵ DEXTER, E. G., op. cit. Figures 19, 20, 21, 22, 30. Chap. XIII.

¹¹⁶ SCHUYTEN, M. C., 'Influence des variations de la température atmosphérique sur l'attention volontaire des élèves,' *Bulletin de l'Académie royale des sciences, de lettres de Belgique*, Vol. XXXII Brussels, 1906.

¹¹⁷ LOBSIEN, M., 'Schwankungen der Psychische Kapazität,' *Pädagogische Psychologie*, Bd. 5, 1902. LOBSIEN, M., 'Experiment Untersuchungen über Gedächtnisentwicklung bei Schulkindern,' *Zeitschrift für Psychologie der Sinnesorgane*, Bd. 27 1901.

work¹¹⁸ Further, Peaks' experimental study of memory has shown that the seasonal fluctuation is different for two groups studied The fluctuations of both groups are far from being identical with the curves of Huntington¹¹⁹ On the other hand, Hines's study of the efficiency of pupils in various temperature conditions has shown that the optimum point of the classroom temperature for mental work is between 65° and 70° F, and that temperature at, and below 60° F, is very harmful to mental work¹²⁰ Furthermore, contrary to Huntington's theory, the experimental study of the influence of humidity on efficiency of mental work, performed by Stecher, did not find any noticeable effects¹²¹ The experiments of Thorndike and McCall, Bass, and the New York State Commission on Ventilation¹²² find that different conditions of the air in regard to temperature, humidity and the degree of the carbon dioxide show no effect on mental work, the rate of improvement of mental functions, accuracy of judgment or upon the choice of alternatives There is no use to continue the enumeration of the results of other and similar experimental and statistical studies Later on I shall discuss some of Huntington's other "proofs" of his claim For the present, the above gives a sufficient basis for the following conclusions first, various studies of the influence of climatic agencies upon mental work have shown either no effects or effects which are very discordant and contradictory, second, these results are by no means identical or similar to the principal statements of Huntington, third, his own data are somewhat contradictory, fourth, this discordance of results does not give any solid basis for definite generalizations about the influence of climate upon mental work, fifth, still less does it permit sweeping generalizations concerning the decisive influence of

¹¹⁸ LEHMAN and PEDERSEN *op cit*, pp 94-104 and *passim*

¹¹⁹ PEAKS, *op cit*, Chap III

¹²⁰ HINES L N, 'Effect of School Room Temperature on the Work of Pupils,' *The Psychological Clinic*, Vol VIII 1909

¹²¹ STECHER, *op cit*, *passim*, and Chap VIII

¹²² THORNDIKE, E L., *Ventilation in Relation to Mental Work*, Teachers College, Columbia University Contributions to Education, N Y, 1916, BASS, 'Experiment on School Room Ventilation with Reduced Air Supply,' *Transactions American Society Heat and Ventil Engineers* 1913, Vol XIX, p 328 THORNDIKE, RUGER, McCALL, 'The Effects of Outside Air and Recirculated Air upon the Intellectual Achievement and Improvements of School Pupils,' *School and Society*, 1916, 3, 679

climate upon the origin, progress, and decay of civilizations and upon their character, and sixth, the conclusion about the influence of climatic agencies upon mental functions has been inferred from the mere existence of a fluctuation of these functions in different periods of a year. Such an inference from the fact of fluctuation to the climatic factors as causes is not valid. As there are regular and more conspicuous monthly, weekly, and diurnal fluctuations of mental efficiency which have very little to do with climatic agencies,¹²³ the existence of 'seasonal' fluctuations is not necessarily due to climatic factors and cannot serve as evidence in favor of their conditioning role. This is enough to prove that the second fundamental premise of the sweeping sociological generalizations of Huntington is not proved. The same as we have seen may be said about his first fundamental premise concerning the correlation of climate and health and efficiency of physical work. Now before we proceed to an analysis of the broadest sociological generalizations of Huntington and others in this field let us briefly discuss other somewhat narrower correlations which students have attempted to establish between geographical factors and various social phenomena. An analysis of their validity will help greatly in the decision as to the validity of the broadest generalizations.

13. CLIMATE AND SUICIDE

A series of investigators such as De Guerry, Legoyt, A. Wagner, L. Bodio, A. Leffingwell, Morselli, Krose, Gaedeke, Dexter, G. von Mayr¹²⁴ to mention only a few, have shown that there is a

¹²³ About these diurnal, weekly, and monthly fluctuations see PEAKS, *Periodic Variations in Efficiency*, the works of M. Bernays, Max Weber, Stecher, Kuhnes, LOMBARD, W. P. Some Influences Affecting the Power of Voluntary Muscular Contract, in *Journal of Physiology*, Vol. XIII, 189, KRAEPELIN, E. Zur Hygiene der Arbeit, *Zeitschrift für Psychiatrie*, Vol. XXV, 1898, CHRISTOPHER, W. S. *Report on Child Study Investigations*, Chicago, 1898-9, MARSH, H. D. The Diurnal Course of Efficiency, *Columbia University Contribution to Philosophy and Psychology*, Vol. XIV, 1906, and GATES, A. *Diurnal Variations in Memory and Association*, Univ. of California Press, 1916.

¹²⁴ See DE GUERRY, *Statistique morale de la France*, Paris, 1835, WAGNER, A. *Die Gesetzmässigkeit*, etc., Vol. I, pp. 128 ff., Hamburg, 1864, MORSELLI, *Il suicidio*, Milan, 1899, DEXTER, *op. cit.* Chap. XI, VON MAYR, *Statistik und Gesellschaftslehre*, Tübingen, 1917, pp. 281, 291, KROSE, H. A. *Die Ursachen der Selbstmordhäufigkeit*, pp. 4 ff., Freiburg, 1906, MINER, J. R. Suicide and its Relation to Climate and Other Climatic Factors, *American Journal of Hygiene*, 1922, JACQUART, C. J. *Le suicide*, p. 99 ff., Bruxelles, 1908, GAEDEKE, P.,

clearly cut and definite seasonal fluctuation of suicide in some European and in some non European countries. The maximum of suicide in all European countries is in the summer. The maximum is in June or May the next place belongs to the spring next one to the fall and the minimum comes in the winter.¹²⁵ The studies have disclosed also that there are weekly and diurnal periodicities in the movement of suicide. Besides they have shown that the frequency of distribution of suicide in space also shows regularity in Europe for instance the average number of suicides according to the latitude is as follows

Latitude	Number of Suicides per Million of Population
From 36 to 43 degrees of latitude	21.1
From 43 to 50 degrees of latitude	93.3
From 50 to 55 degrees of latitude	172.5
More than 55 degrees of latitude	88.1 ¹²⁶

From these facts many of the investigators have inferred that the movement of suicide is strongly and directly conditioned by climatic factors. Some have laid it to fluctuations of temperature others to fluctuations of light and pressure and others to a combination of all these and other climatic agencies. Such conclusions seem natural. And yet more serious analyses of all these phenomena first by Durkheim and later by Krose and Jacquart have shown that at the very best the influence of climatic factors if such an influence generally exists is very indirect and insignificant that the climatic hypothesis cannot explain either the fluctuations or the suicide rate in the course of time in different countries and societies or between city and country districts among the single married and divorced or sudden increases or decreases in the same society or even the character of the diurnal weekly monthly and seasonal fluctuations of this phenomenon. Durkheim has shown that the factor responsible for suicide is not climate but an increase or decrease of the social

Contribution statist à la réaction des organismes etc. *Archives d'anthropologie criminelle* Lyon et Paris Vol XXIX 1909 pp 81 ff and LEFFINGWELL A. *Illegitimacy* London 1892 pp 21 ff. In these works other literature and statistical data are referred to.

¹²⁵ By the way the suicide rate is also one of the criteria of vitality. The seasonal fluctuation of this phenomenon is considerably different from Huntington's curves of death rate or reversed health rate.

¹²⁶ DURKHEIM E. *Le suicide* p 83 Paris 1912

isolation of the members of a society. He has convincingly exhibited how this and some other social factors condition all the above fluctuations of suicides, including also the "seasonal" ones. His hypothesis reconciles with the statistical data of suicides, his analysis of the phenomenon is less mystical than the climatic theory, and his theory gives a more plausible explanation of the facts.¹²⁷ Hence we must conclude that the correlation of suicides and climatic conditions is not proved, as yet, and even if it exists, which is questionable, it is not direct and primary.

14 CLIMATE AND INSANITY

Many authors, such as Leffingwell, Norbury, Huntington, Dexter, Watt, and others have tried to establish a correlation between climatic agencies and the fluctuations of insanity or of general mental diseases.¹²⁸ The principal basis of such a contention is also the existence of "seasonal" fluctuations in the number of people who are admitted to asylums. Some of these authors contend that the phenomena of insanity and suicide are closely correlated. After Durkheim's study of suicides we must admit if such a correlation exists, which is questionable at any rate it is pretty remote.¹²⁹ Further, it is possible to contend with a reasonable degree of certainty, that, if climatic agencies condition the movement of insanity, their role at any rate is not primary but secondary. This inference follows from the fact that neither the distribution of insanity among different societies nor the fluctua-

¹²⁷ See the brilliant analysis of the climatic theories of suicide in DURKHEIM, *Le suicide*, Chap. III. As I mentioned before this case especially illustrates how difficult it is to solve the problem of causation of social phenomena how easily one may make the mistake of *post hoc ergo propter hoc* and how unscientific it is to make an inference from the mere fact of the fluctuation of some phenomena in time or space to the first and most conspicuous condition as the 'cause' in this case, to the climatic factors. See also J. R. MINER's study which shows no influence of climate on the fluctuation of suicides.

¹²⁸ See LEFFINGWELL, *op cit* pp. 98 ff. NORBURY F. P. 'Seasonal Curves in Mental Disorders' *Medical Journal and Record* Vol. CIX, 1924. HUNTINGTON *Civilization and Climate*, pp. 155 ff., 225. DEXTER *op cit*, Chap. IX. WATT, Wm. E., *Open Air*, 1910.

¹²⁹ See DURKHEIM, *op cit*, Chap. I. While males have a higher percentage of suicide, females are higher in insanity while Jews have a higher percentage of insanity than Protestants or Roman Catholics in regard to suicide the situation is reversed. The seasonal curves are not quite parallel either. Evidently, if there were a close correlation between these phenomena these and many similar discordances could not have taken place.

tions of the insanity curve from year to year within the same society, nor the different rates of insanity in different classes, sexes, religious and race groups of the same society and under the same climatic conditions, can be accounted for through climatic factors. In other words, the most substantial differences and changes in the insanity rate are the results of non-climatic factors.

The question as to whether climatic agencies play some secondary role in the increase and decrease of the insanity rate is less certain. As I have indicated, the only basis for a positive answer to this question is the prevalence of "seasonal" fluctuations of insanity. Here as well as in all "seasonal" fluctuations of social phenomena, the very fact of "seasonal" fluctuations does not mean anything if it is not somewhat similar from year to year. Without such a regularity it is meaningless. Even if there is such a regularity, it does not necessarily mean that it is caused by climatic factors. Now is there such a regularity in the "seasonal" fluctuations of insanity, from year to year? Furthermore is there a regularity in the sense that the seasonal movement of the insanity curve in similar climatic conditions is similar? As to the first question the answer is that the regularity is very relative. For instance the monthly curve of the number of lunatics admitted into asylums in Scotland during the years from 1865 to 1874, shows that from March to April the number of lunatics decreased, while during the years from 1880 to 1887 it increased in April, the fluctuations of the number of lunatics from April to May is also opposite in both periods, the same differences are true in regard to fluctuations from May to June, from June to July, from August to September, and from September to October.¹²⁰ Likewise, the months of the maximum and the minimum insanity rate shift from March to June and July in different years within the same population and are different for places of similar climatic conditions, and sometimes are the same for places with quite different climates.¹²¹ This means that the "seasonal" regularity of fluctuations of insanity rates is somewhat irregular.

¹²⁰ See LEFFINGWELL, A., *op cit*, Appendix, p. 157.

¹²¹ Compare the data in DEXTER, *op cit*, p. 170. LEFFINGWELL, *op cit*, p. 157. HUNTINGTON, *Civilization and Climate*, p. 156, DURKHEIM, *op cit*, p. 89.

All that remains is that during one half of a year (and the months which compose this half depend considerably upon the investigator) the insanity rate is somewhat higher than in the other half: for Europe and America we may say either the winter and spring months have a rate somewhat higher than the summer and fall months or that the spring and summer months are somewhat higher than the fall and winter months. From these remarks one may see how little remains of these "seasonal" fluctuations of insanity. Its correlation approaches close to a chance-fluctuation because some probability always exists. Finally, if in these "seasonal" fluctuations of the insanity rate something more than mere chance exists, the partizans of the climatic factors must show that, namely, the climatic and not other factors is responsible, and why and how climatic agencies condition such fluctuations. All we have in this respect are but discordant guesses. In their attempts to explain the nature of climate, the authors mention "irritating temperature," "exasperating dryness" or "barometric pressure," "excessive humidity," "fatigue of nerves" (which is something different from climate), or more honestly style this unknown influence as "mysterious" (Leffingwell and many others). No serious attempt to define what temperature or degrees of light or dryness are favorable to insanity or to verify these hypotheses inductively, is found in the works of "the climatists." We may conclude that the correlation between insanity and climate is not proved as yet, and if in the corresponding theories there is some truth, it cannot mean more than a slight degree of partial correlation. Even this statement may be questioned.

15 CLIMATE AND CRIME

All that has been said of the alleged influence of climate upon suicide or insanity may be said also of its relationship to crime. The existence of an influence is accepted by many criminologists on the basis of "seasonal" fluctuations of crimes against property and persons. These fluctuations, and the reverse character of the "seasonal" fluctuation of the number of crimes against property and those against persons, are regarded as sufficient

proof of the influence of climatic agencies upon crime¹³² In regard to this correlation it is possible to make the following statements

First the frequency and fluctuations of crimes (against property as well as against persons) in various countries and in various parts of the same country in urban and rural districts and among different social strata and groups (economic occupational religious racial cultural national) are such that except in part they cannot be accounted for through the influence of climatic conditions at all This means that at the best climatic agencies exert only secondary and indirect influences The substantial traits of the movement of crime are determined by other factors

Second the same may be said about fluctuations of crime within the same or different societies in time as from year to year Extraordinary increases or decreases of crime in a definite year or in a series of years as a rule are due to other than climatic agencies Indirectly in agricultural countries climatic agencies through conditioning the crops may play a considerable role but only through poverty or prosperity These are the direct causes and not climatic factors

Third the above statements mean that the medium of climatic agencies may play a part only in a limited field of seasonal fluctuation of crime Even in this field their possible influence may be indirect only in the sense that men become more or less criminal not because the temperature is higher or the humidity is lower or the sunlight is less bright but because the direct factors of criminality such as poor crops or out-of-doors social life are partly influenced by climatic conditions It may be that some forms of crime *e.g.* sexual crimes are directly stimulated by climatic factors but even this is not proved conclusively

Fourth even in this limited sense the influence of climatic

¹³² The corresponding literature is immense The correlat on has been emphasized in the works of A Moreau de Jonnés Ad Quetelet Oett ngen, Levasseur Lombroso E Ferri Leffingwell, B Foldes H Kurella, Lacassagne Guerry Jentsch Aschaffenburg Dexter P Gaedeke, J L de Lanessan, and in many general texts of criminology like M Parneelee's *Criminology* and J L Gillin's *Criminology and Penology* Chap V though Gillin is rightly cautious in this respect See the literature in VON MAYR G *Statistik und Gesellschaftslehre* Bd III pp 614-615 and in the texts of Gillin and Parneelee See the statistical data especially in von Mayr's work pp 600-615

agencies is still somewhat questionable. We are prone to find a regularity where there is the slightest pretext. It is accepted as proved that important and regular "seasonal" fluctuations of crime exist. Meanwhile the real situation is considerably different. In the first place, tables generalized too much mask the fact that the movements of both crimes against property and persons are different and often opposite in various places of similar climatic conditions.¹³³ In the second place, the regularity of the "seasonal" fluctuations of crime is somewhat exaggerated; it is sufficient to look attentively at the monthly figures of crime against property or persons from year to year to see that their movement from month to month is far from being uniform in "ups" and "downs" for different years. For instance, in Belgium, in 1910, the number of crimes against persons in February was less than in January, and in 1911, it was greater than in January. The same is true in regard to other crimes, and other months, and other countries.¹³⁴ This means that the regularity of the "seasonal" fluctuation of crime is far from being definite. This is also corroborated by the fact that the months of maximum and of minimum crime often shift from one to another in the same country in different years, that they sometimes are different for the countries of almost similar climatic conditions, and identical for the countries of different climates, that in some southern countries the "seasonal" curve of crime often has quite a different character (not the opposite, which could be explained by differences in temperature, but a very dissimilar character), and that in a more detailed form different kinds of crimes against property, as well as against persons, exhibit much more complex and much less regular and uniform fluctuations than we are led to believe on the basis of a few general and one-sided figures.¹³⁵ These and many other considerations are enough to

¹³³ As only one out of many examples of this kind I may indicate the seasonal curve of homicides in Seattle. The number of homicides there has been the lowest in the warmest months (May, June, July) and the highest in the coldest months (December, January, February). See SCHMIDT, C. F., "A Study of Homicides in Seattle, 1914 to 1924," *Social Forces*, June, 1926, p. 751.

¹³⁴ See the figures of Belgium in VON MAYR, *op. cit.*, p. 610.

¹³⁵ These facts may be seen even in the figures that are given in von Mayr's work, in spite of von Mayr's own theory, see pp. 609 ff., a great many "climatic fallacies and pretensions" in an interpretation of factors of crime have already been dissipated by many criminologists, beginning with G. Tarde, and ending

show that the so called regularity of the "seasonal" fluctuations of crime is a 'loose statement'. The factors are to be discovered yet. Finally if we try to find out why, how, and in what way climatic agencies condition crimes our results are practically nothing but indefinite dogmatic repetitions of contradictory allusions to the 'weakening or irritating' influence of temperature or air or humidity or wind and so on. And often the same author on one page ascribes an 'irritating' character to one climatic condition while on another page of the work he lays it to quite different climatic agencies (because there the movement of crime is different and cannot be explained by the first reason).¹³⁶ The corresponding explanations are so vague that we do not know of temperature or humidity or barometric pressure which facilitates and which hinders crime. The situation remains almost mysterious and hopeless. These remarks are enough to show that if there exists any correlation between climatic agencies and crime it is of secondary importance and still needs to be tested. Some indirect influence of these factors appears probable but it is somewhat intangible. At any rate the principal fluctuations of crime in space and time are not due to climatic factors.

16 CLIMATE AND BIRTH DEATH AND MARRIAGE RATES

I shall not discuss at all the curious but rather fantastic geographical theories in this field like Jenkin's theory of a correlation between Jupiter and the death rate but I shall limit my criticism to the more reasonable hypotheses. The preceding conclusions may be applied as well to the fluctuations of death birth and marriage rates in space and in time and to the seasonal fluctuations especially.¹³⁷ An attentive study of the corresponding

with the works of N. Colajanni, Bonger van Kan, Gernet Charychov and of many other criminologists of the so-called sociological school. See VAN KAN J. *Les causes économiques de la criminalité*. TARDE G. *La criminalité comparée* and *Penal Philosophy*. COLAJANNI N. *La sociologia criminale*. GERNET M. *Crime and its Prevention* (Russ.) and *Juvenile Delinquents* (Russ.). CHARYCHOV Factors of Crime (Russ.). BONGER W. A. *Criminality and Economic Conditions*. THOMAS D. *Social Aspects of the Business Cycle*. London, 1925.

¹³⁶ These traits may be seen, even in the books of such modern climatists as M. Parmelee read attentively pages 43-53 of his *Criminology*.

¹³⁷ See the statistical data in OETTINGER A. *Die Moralstatistik* 1882 chapters devoted to an analysis of death, birth and marriage rates. LEVASSEUR, E. *La population Française* Vol. II. Paris 1891. VON MAYR, G. *Statistik und Gesellschaft*.

statistical data shows that the principal fluctuations in space and time of the rates of these vital processes cannot be accounted for through climatic factors. The same is true in regard to "trends" in these phenomena. Practically the only field where the influence of climate may be admitted is that of the so-called "seasonal" fluctuations. But even here, as far as the complex Western societies are concerned, the direct influence of climatic conditions is very uncertain and questionable. The "seasonal" curves of these processes are even less definite and regular than in many of the processes discussed above. For instance, the birth rate or correspondingly the number of conceptions has two high peaks: the birth rate in February and March and in September and October, the conception rate in January and December and in May and July. These are in the most different climatic conditions. The same is true in regard to the yearly periods of the minimum conception and birth rates¹³⁹. On the other hand, the "seasonal" fluctuations of the birth rates of different social groups, for instance, Protestants and Catholics, who live in the same area, under the same climatic conditions, show considerable difference. Such "seasonal" fluctuations of birth rates testify that they are conditioned by factors different from climate. In the second place, the "seasonal" fluctuation of these vital processes is far from being regular and is therefore far from being 'seasonal' in the proper sense of the word. They seem to be mere fluctuations whose causes are yet to be discovered. In the third place, in the course of time these fluctuations become more and more indefinite and less and less "seasonal". For these reasons it is possible to contend that even the so-called "seasonal" fluctuations of these processes do not definitely prove the direct and important influence of climatic factors. Among primitive tribes, and among the non-domesticated animals, sexual life and conceptions have a definite seasonal character. It is well known that the non-domesticated animals have a definite period of rutting. Only during such periods do they perform and physiologically can perform sexual functions. Westermarck, Wagner

schaftslehre, Vol. II and the parts on the population statistics in the works of Wappäus, H. Westergaard and others.

¹³⁹ See also WHITE R. C., "The Human Pairing Season in America," *American Journal of Sociology* Vol. XXXII, pp. 800-805.

B. Spencer and Gillen, Oldfield, Bonwick, Mannhardt and many other investigators have shown that among primitive peoples and the forefathers of the Romans, the Greeks, and contemporary European populations there has been and is a kind of a remnant of this phenomenon of rutting manifested in the conspicuous intensiveness of sexual life at certain periods of the year.¹³⁹ But even such a definite seasonal location of sexual life seems not to have been due to climatic conditions directly but to other factors and especially to the factor of alimentation. The two most plausible hypotheses offered for an explanation of the rutting of animals, the theory of Leuckart, and that of Westermarck, both stress the role of food and only the indirect influence of climate as a factor conditioning food abundance. According to Leuckart, the rutting period coincides with the period of the most abundant food, according to Westermarck the rutting periods are those when a species can procure the food and other necessities for offspring at the moment of its birth. On the other hand the rôle of the food factor is accentuated by the fact that our domesticated animals, who are put in a condition where their food is secured throughout the whole year, mate also throughout a whole year.¹⁴⁰ This shows that among animals even the direct factor of "seasonal" fluctuations of conception and of sexual life is not so much climate as food.¹⁴¹ Climatic conditions play only an indirect rôle, as far as they condition the seasons of abundant and of scarce food. For this reason it is comprehensible why the "seasonal" fluctuations of conceptions and births among primitive peoples are more definite

¹³⁹ See WESTERMARCK, E., *History of Human Marriage*, Chaps. I, II, WAGNER, *Handwörterbuch der Physiologie*, the article of Leuckart, Bd. IV, p. 862, GRÜEN HAGEN, *Lehrbuch d. Physiologie*, 1885-7 Bd. III, p. 528. MANNHARDT, *Walde und Feldkulte* Berlin, 1875 Bd. I, Chap. V. KHARUSIN, *Ethnography* Volume, *Family and Kinship* (Russ.) pp. 50 ff. OLDFIELD, 'The Aborigines of Australia,' *Transactions of Ethnological Society*, New Series Vol. III p. 230. BONWICK, *Daily Life and Origin of the Tasmanians*, p. 178. Lond. 1870. PRAZER, J. G., *The Golden Bough*, Vol. III, pp. 230 ff., Lond. 1890. ELLIS, H., *Studies in the Psychology of Sex*, Vol. I pp. 85 ff., Philadelphia, 1910.

¹⁴⁰ See GAGEMAN, *Physiology of Domesticated Animals* (Russ.) 1908, pp. 232-233. HEAPE, W., 'The Sexual Season of Mammals,' *Quarterly Journal Microsc. Science*, Vol. LXIV, 1900, p. 12. MARSHALL, F. H., *Physiology of Reproduction* pp. 57 ff., Lond., 1910. DARWIN, CH., *Variations of Animals and Plants under Domestication*, Vol. II p. 90, Lond., 1885.

¹⁴¹ See reference below. See also the paper of A. MEYERSON, in *American Review*, January-February, 1924, and PELL, C. E., *The Law of Births and Deaths*, Lond., 1921. These writers discuss the rôle of the food factor in fertility.

than among cultural peoples whose supply of food and other necessities has become almost independent of seasons¹⁴²

This discussion is enough to show that at the best the rôle of climatic factors in these vital processes is only indirect, and in civilized societies it is so strongly neutralized by other non-climatic factors that the influence of the climate becomes almost intangible. It is impossible to establish the correlation between climate and vital processes in any more definite form. This statement applies also to the movement of the death, and especially of the marriage rate within Western societies¹⁴³

¹⁴² It is also questionable whether such phenomena as sexual maturity among human beings is influenced by climate. Some data which show that in tropical regions the age of menstruation is lower (12.9 years) than in the cold regions (16.5 years) (according to Engelmann) are far from being general. In the United States, for instance, no influence of climate upon menstruation has been detected. Among the Eskimo the age is at about thirteen years, which is almost as low as in the tropics. Furthermore, a series of studies have shown that it is influenced by racial factors. In Hungary it fluctuates from stock to stock such as from 13-14 among the Slavs to 16 or 17 among the Styrians. It is often lower for the upper strata and higher for the lower classes. In America such a correlation has been found. These and similar data make us believe that if climate influences the sexual maturity age this influence is far from direct, or definite or even tangible. See the data in ENGELMAN, G. J., "First Age of Menstruation in the North American Continent," *Transactions of American Gynecological Society*, 1901, pp. 87 ff.; KRIEGER, E., *Die Menstruation*, pp. 17 ff., 52 ff., Berlin, 1869; KELLY, H. A., *Medical Gynecology*, pp. 83 ff., Lond., 1912; RASERI, "Inchiesta della Società Antropol." in *Annali di Statistica*, serie II, Vol. VI, 1881; MARRO, A., *La Pubertà*, Torino, 1900.

¹⁴³ The above statements concerning the irregularity of the so-called seasonal fluctuations of death, marriage, and mortality rates, and the impossibility of accounting for these fluctuations mainly through climatic factors are also corroborated by a very careful study of these processes by M. B. Hexter and D. S. Thomas. Though Dr. Hexter himself writes the following indefinite statement: "much evidence exists to show that the birth rate (and marriage and mortality rates) is highly influenced by the seasons, even among civilized men," nevertheless, his data bring out the fallacies of so-called seasonal fluctuations. The seasonal movement of the birth rate of Boston from 1900 to 1921 shows that the months of maximum are March, December and July, and the months of minimum are April, November and September. This means that the maxima occur in the most different climatic conditions. The same is true of the months of minimum. In addition, November and December which do not differ noticeably in climatic conditions, exhibit the greatest contrast in regard to the birth rate. If climatic conditions were responsible for a seasonal fluctuation of birth rates we should expect that months which have approximately similar climatic conditions would have similar birth rates. Since this is not the case, according to all laws of inductive logic, we cannot explain the "seasonal" fluctuations through climate. Further, monthly data for the years from 1900 to 1921 show that monthly fluctuations are considerably dissimilar from year to year. The points of minimum and maximum shift from month to month in different years. The same is true in regard to the movement of marriages, deaths, and divorces. Thus

17 GEOGRAPHIC CONDITIONS AND RELIGION, ART, AND LITERATURE

It is to be expected that geographical environment will be in some way reflected in the products of the imaginative work of man, in his arts, literature, music, painting, architecture, and beliefs. This expectation, especially for relatively primitive and isolated groups who have dwelt in the same geographical environment for a long time, seems to be corroborated to some extent. However, this extent is negligible. What seems to be proved is only that the art, the literature, and the beliefs of a people are somewhat 'colored' with the images, figures, and forms most often taken from the geographical environment in which such a people live. Among many writings of those who have spoken of such "colorings" of religious beliefs by the 'colors' of the local geographical environment, the short paper of R. H. Whitbeck is possibly the best. His paper shows that many peoples usually symbolize their friendly gods by such geographic agencies as under the existing conditions are beneficial to the society while they picture unfriendly gods by harmful geographic phenomena. The Satan of Egypt was the Thyphon, that of India was *Vritra*, the serpent, and the evil deities of ancient Norway were the frost giants or mountains. Likewise, the ideas of different peoples concerning paradise and hell show the same "coloration." Paradise for the American Indian is a hunting ground abundant in game; for the desert Arabian it is an oasis containing trees, streams of water and an abundance of cool and refreshing shade; and for the ancient Norse it is a warm and sunny place. On the other hand, hell usually is depicted as a place in which are embodied the geographical conditions from which the population suffers—cold in the north, heat in the tropics, and so on. Whit

is enough to suggest that these fluctuations are far from being seasonal in the proper sense of the word and cannot be accounted for through the influence of climate or other geographical factors. See HEXTER, M. B., *Social Consequences of Business Cycles* passim, and pp. 20 ff., 55 ff., 70 ff., Boston and N. Y., 1925. See also WHIPPLE, G. CH., *Vital Statistics* p. 306, N. Y., 1919 where Professor Whipple gives the 'seasonal' movement of the death rate in 1910 which yields a 'seasonal' curve of the death rate different from the curve of Hexter. Dr. Falk's curve of the death rate for the United States Registration Area in 1919 shows a somewhat different curve from that of Hexter and Whipple. See FALK, I. S., *Principles of Vital Statistics* 1923 p. 183.

beck indicates further that when peoples change their territory and live in quite a different environment, their images of gods and their other beliefs undergo a corresponding modification. For instance when the Aryans entered India their chief deity was Dyaus (sky), and Indra, the rain-giver, was of minor rank. Later on, in view of the great importance of rain in India, the chief deity became Indra while Dyaus was demoted to a second-rank god. The same author and several others further show that many other religious images and beliefs are colored in a similar way.¹⁴⁴

Similar correlations may be observed in folklore, in songs, fairy tales, poems and other literary products of different peoples during the earlier stages of their history. The character of the geographic environment which forms the background, the kinds of trees, plants and animals which are depicted, and the general scenery of the *Thousand and One Nights* or the *Iliad* and *Odyssey*, or the Norse *Edda*, or the Hindu *Mahabharata* are quite different from each other and each is marked by the characteristics typical of the locality in which its creator lived. Many authors have discussed such correlations. H. Taine tried to explain the difference between the Flamand and the Florentine schools of painters through differences in the geographic conditions of Italy and the Netherlands. Eug. Veron, Aug. Matteuzzi, Ch. Letourneau, Mme. de Stael and many others have attempted to show similar correlations between geographic conditions and architecture, painting, literature, music, etc.¹⁴⁵

The above correlation in "coloration" of the products of art, literature, and religion, is admitted. At the same time I must

¹⁴⁴ See WHITEBECK, R. H., "The Influence of Geographical Environment upon Religious Belief," *The Geographical Review*, Vol. V, 1918, pp. 316-324; see other references here. To the credit of the author it must be said that he does not force his correlation and frankly says that many factors combine to mold a people's religious beliefs. Geographical environment necessarily is one of these, sometimes a conspicuous influence, and sometimes perceptible only in minor ways." *Ibid.*, p. 317. See similar theories and correlations in MOUTON, *Les problèmes de l'histoire*, pp. 374 ff., DUPUIS, *Origine de tous les cultes*, IX, the paper of L. Drapeyron in *Revue de géographie*, 1-er partie, 1-er année. SEMPLE, E., *op. cit.*, Chap. II, PESCHEL, O., *The Races of Man*, pp. 314-318, N. Y. 1894.

¹⁴⁵ See TAINÉ, H., *Philosophie de l'art*, III. VERNON, EUG., *L'esthétique* especially MATTEUZZI, AUG., *Les facteurs de l'évolution des peuples*, pp. 52 ff., 211 ff., Paris, 1900, LETOURNEAU, CH., *L'évolution littéraire dans les diverses races humaines*, Paris 1894.

condition the statement by showing that even for a relatively early stage, the correlation is far from being rigid and universal, and that it is likely to become less and less tangible as we proceed to later stages of more complex and more mobile societies, and finally, that a great many geographers and authors have greatly exaggerated the influence of geographic conditions in this field. The validity of the first and the second propositions is proved by the fact of the existence of similar or identical beliefs, symbols, myths, legends, fairy tales, architectural types, music and so on among peoples who inhabit very different areas and live under different longitudes, latitudes, and altitudes. It is also true that peoples who are in the same geographical conditions often have quite different beliefs, tastes, and standards in art and literature. Consider the areas of the expansion of Christianity, Buddhism, Mohammedanism, Confucianism or any great religion. The followers of each of the religions are found among different geographic conditions and climates. This means, that in spite of geographic differences, all have essentially similar beliefs. If there are differences, they are due not so much to geographic as to cultural dissimilarities of social groups. Take the dynamic history of mythology: it shows that similar myths have expanded among peoples with unlike geographical conditions.¹⁴⁶ The same is true in regard to Gothic architectural style, or to Empire or to imitations of antique styles. Are not the compositions of Beethoven, Grieg, Verdi, Rossini, Tschaiakovsky or of any great composer played in all latitudes and longitudes? Is not the same true in regard to the works of the great masters in poetry, painting, literature and sculpture?

On the other hand, consider the population of the same place, *e.g.*, of a big city of the past or of the present. Do we not find the people there with very different religious beliefs, æsthetic tastes, and literary standards, in spite of the identity of their geographic environment? Both of these categories of facts are so evident, so certain, so common in the past and in the present, that there scarcely is any need of further proof that the correlation we are discussing is relative, loose and even imperceptible.

¹⁴⁶ See *e.g.*, FRAZER, J. G., *The Golden Bough* passim and Part IV. *Adonis Atlas, Osnia*, London, 1907; see also MACKENZIE, D. A., *Migration of Symbols*, N. Y., 1926.

From these statements it is easy to see the fallacy in doctrines such as the following "Social institutions and religious ideas are no less (than physical characteristics) the product of environment. We might just as well ask the Ethiopian to change his skin as to change radically his social and religious ideas. It has been shown by experience that Christianity can make but little headway amongst many peoples in Africa or Asia where on the other hand Mohammedanism has made and is steadily making progress. This is probably due to the fact that Mohammedanism is a religion evolved in latitudes bordering on the aboriginal races of Africa and Asia (Ridgway). If the author had taken into consideration the mere fact that Mohammedanism, as well as Christianity, has spread among people who live in both warm and cold climates, in plains and on mountains, under varying geographical conditions, he would not make such rash generalizations. Further, if he had taken into consideration that the culture complex of the peoples in Asia was more congenial to the culture complex of Mohammedanism, this additional reason would cause him to refrain from making climate the main factor in the expansion of Mohammedanism and Christianity. Furthermore, sometimes populations change suddenly within a few years from one religion into another, (spreading of Christianity within the Roman Empire and its conquests in Gallia, Ireland, and Britain, its introduction into Russia by the order of the government similar expansions of Buddhism, Mohammedanism, and so on) and sometimes as rapidly back into the previous one. Thus we have ample evidence that great changes in religion have been taking place within the same geographic habitat and without any changes in conditions. This is sufficient to show that such changes in the religion of a population are not correlated with geographic factors.

Here is another example of such fallacious reasoning. Abercromby found¹⁴⁷ that the area of expansion of the Mohammedan religion in Asia and in Africa coincided with the area in which the mean annual rainfall was below ten inches. Hence he concluded that the amount of rainfall was a vital factor in the ex-

¹⁴⁷ See ABERCROMBY, JOHN *Seas and Skies in Many Latitudes*, pp. 42-43. Lond. WARD R. DECOURCY, *Climate Considered Especially in Relation to Man*, pp. 258-259. N. Y., 1918.

pansion of Mohammedanism or Christianity. A study of the areas of Mohammedanism in Europe and in Asia (India) shows the fallacy of this theory. A correlation between deserts and monotheism set forth by E. Renan is likewise invalid.

The next example of this bad logic is found in H. Taine. He explained the difference between the Florentine and the Flemish schools in painting by their geographical environment. When, however, he found that two schools were similar in many respects, he saved his theory by the statement that their geographical environment was similar.¹ He adjusted the facts to meet the case.

Matteuzzi claimed that geographic differences in northern and southern Europe manifested themselves in the fields of the literature and music of these peoples. He claimed that northern people had less imagination and fantasy, and less ability for deductive generalizations than the southern people. On the other hand, the southern people were more musical.¹⁴⁸ These and other "generalizations" of the author show a great deal of imagination but are utterly fallacious from the standpoint of science. It is only necessary to recall such imaginative and fantastic creations of the northern peoples as the Finnish epic *Kalevala*, the series of Russian epical poems, fairy tales and legends *Edda* of the Norse, the epics connected with King Arthur, the *Nibelungenlied*, or the epic about Roland, to see the fallacy of the "generalization." It is necessary to forget the names of Bach, Beethoven, Mozart, Chopin, Wagner, Rimsky-Korsakov, Grieg, Brahms, Tchaikovsky, Musorgsky, and thousands of other great composers of the north to assert that the Italians are more musical. It is possible to claim that southern Europeans have greater powers of deduction and generalization¹⁴⁹ only after forgetting such names as Descartes, Kant, Copernicus, Newton, Darwin, Leibnitz, Pasteur, Claude Bernard, Lamarck, Lobachevsky, H. Spencer, and others.

I could fill hundreds of pages with examples of such false generalizations.¹⁵⁰ But there is scarcely any need of it. In their

¹⁴⁸ See MATTEUZZI, *op. cit.*, pp. 52 ff., 211 ff.

¹⁴⁹ See a sound criticism of these theories in KOVALEVSKY, S., *Sovremennaja Sociologiya*, St. Petersburg, 1905, Chap. IX.

¹⁵⁰ We have here the same unhappy use of the method of "illustration" which is a real plague in the social sciences. Instead of a systematic verification of a

scientific value they are similar to the most unfortunate correlations between climate and social phenomena made by Montesquieu¹⁵¹ But what could be overlooked in the writings of the great author of *The Spirit of the Law* on account of the lack of factual material in his time cannot be excused in these modern authors Their theories may be interesting sometimes even suggestive but unfortunately at the first scientific scrutiny they fall like a house of cards¹⁵²

18 GEOGRAPHIC CONDITIONS AND SOCIAL AND POLITICAL ORGANIZATION OF SOCIETY

We have seen that the Le Play school tried to explain the principal types of the family through differences in the habitats of peoples Since Montesquieu several writers in a similar way have accounted for such characteristics of the family as monogamy polygamy or polyandry through geographic environment Several authors like Ritter and Ratzel and their followers have gone further and tried to account for the size of a body politic the form of its organization its peaceful or military character the optimism or pessimism of the people the progressiveness or backwardness the love for freedom or for subordination and hundreds of other characteristics through these geographic influences Are these and many similar statements valid?

I have already indicated the shortcomings of the theory of the origin of different types of families given by the Le Play school It may explain a part of the evolution of each type but not very much Attempts to correlate forms of marriage and varieties

hypotheses the authors use one or a few fragmentary cases favorable to their conclusion and victoriously declare that it is 'proved' Such a method of proving is utterly anti scientific in its nature

¹⁵¹ Montesquieu formulated a great many correlations between geographic conditions and various social phenomena slavery and freedom, polygamy and polyandry monarchy and republic Protestantism and Catholicism and so on At the present we consider a great many of these correlations doubtful

¹⁵² I have no desire to discuss here theories like M. Muller's theory of the origin of religion and its evolution in which he emphasizes the rôle of geographic conditions and especially of magnificent natural phenomena like thunderstorms, in the beginning of beliefs in God supernatural beings and so on This does not directly concern my topic besides it has been criticized by many authors, such as E. Durkheim so my criticism is unnecessary See DURKHEIM *Elementary Forms of Religious Life* N. Y. 1915 chapters devoted to the criticism of M. Muller's and Revill's theories of naturism

of the family with geographic environment have not been successful. Try to correlate monogamy, polygamy, polyandry, endogamy, exogamy, or duration of marriage with climate, altitude, latitude, longitude or any component of geographic environment. It becomes evident at once that such a correlation does not exist. All these are found in vastly different geographic conditions.¹⁵³ The statement applies also to many other characteristics of the family. One of the best authorities in the field of family evolution, J. Mazzarella, after his study of the area of diffusion and the causes of the matriarchate, the ambilian form of marriage, polygamy, and so on, concludes: "These institutions do not depend (directly or tangibly) on geographic causes because they are found among peoples quite different from the standpoint of geographic conditions" (from the arctic to the tropics, from the islands to the mountains, from the deserts and plains to the forest regions).¹⁵⁴ This becomes more evident when one takes into consideration that in the same area, and sometimes in a period of time too short for any serious change of geographic environment, the family institution undergoes radical modifications. In the same geographic area we often see family institutions of different types, according to the population. The same family or marriage type (polygamy or monogamy) is found in areas with great contrasts in geography. Many geographers have attempted to establish other correlations between geographic and social phenomena. Here are several typical examples.

Correlation Number 1. Geographic conditions determine the size of a body politic and political, racial, national, and cultural frontiers. Areas separated by mountains or seas have separate political, racial, national, and cultural groups, while populations situated on large plains form a large body politic. The same correlation is claimed in regard to race, language, and culture.

¹⁵³ See the catalogue of corresponding peoples in WESTERMARCK, E., *The History of Human Marriage* (Lond., 1921) Vol. II Chaps. XVIII, XIX, XX; Vol. III Chaps. XXVII, XXVIII, XXIX, and *passim*. Here again the authors usually "prove" their claims through the method of illustration. The most favorable illustration of polyandry caused by geographical condition is Tibet. Even such sociologists as Sumner use this "proof."

¹⁵⁴ See the excellent studies of MAZZARELLA, J., *Les types sociaux et le droit*, pp. 179-180 and *passim* (Paris, 1908); *La Condizione giuridica del marito nella famiglia matriarcale* (Catania, 1899).

Selected illustrations are given to corroborate the statements¹⁵⁵ We shall test the proposition by looking at the contradictory facts of the past, as well as of the present Neither the Ural, nor the Altai, nor the Himalaya, nor the Carpathian and other mountains have hindered the Russian, the Chinese, the Austrian, the Swiss, the American, or the British Imperial bodies politic from expanding on both sides of the mountains or over the seas In the past, the Roman, Egyptian, Assyrian, Chinese, Turkish and Persian Empires, as well as those of Alexander the Great and of Genghis Khan have spread in a similar fashion On the other hand, "separate nationalities may exist within regions which seem to be marked by physical nature for political unity" and "the map of Europe affords very few natural boundaries", beyond a few cases "there is hardly a mile of political frontier in Europe which is natural in any valid sense—that is to say, a well marked physical obstacle interposed between peoples differing in race and language"¹⁵⁶ During a thousand years or even during a century geographic conditions remain practically the same while political bodies and cultural areas usually change very considerably, even radically The absence of any correlation between the habitat of the principal races and the geographic environment has been shown These fundamental series of facts show the fallacy of the proposition If a relationship exists, it is not rigid, perma-

¹⁵⁵ See RATZEL F., *Politische Geographie*, Chaps XII to XV 1903 SEMPLE E., *op cit*, Chap II GEORGE, H B., *The Relations of Geography and History*, pp 11 ff, Chap III, Oxford, 1901

¹⁵⁶ GEORGE, H., *op cit*, pp 66, 70 Here and in Chapter VI the author considerably disproves his own statements given in Chapters I and II See a detailed analysis and the conclusion that geographic conditions do not perceptibly determine the size of a body politic in VALLAUX *Le sol et l'état* Chap IV Vallaux tries to save something of this correlation by offering the following modification "The body politic does not depend upon climate or the relief of habitat, or the possibility of expansion in space or the position However, from the standpoint of the place where it originates, it depends on the degree of the character of (geographic) differentiation grouped within this place There is a permanent tendency to form an autonomous state in the most differentiated geographic areas, and activities of a state, formed in such a region, urge it to expand towards the areas which are less differentiated *Ibid* pp 202 ff This somewhat obscure proposition is further complicated by an indefinite subdivision of active and passive geographic differentiation and by a series of subtle discriminations which are indefinite and unconvincing The facts which are used to support the proposition are so contradictory and illogical that it cannot be accepted as proved See *ibid*, Chap VI

ment or universal. It may be an indefinite shadow with a very vague connection but surely not a tangible correlation.

Correlation Number 2 Ratzel's famous correlation between geographical space and several social characteristics of large and small political bodies is of a similar nature. The essence of this theory is as follows.¹⁵⁷ The population of the states with large territories because of the vastness of the abode possesses a spirit of expansion and militarism, an optimism and youthfulness and a psychology of growth. Within such social bodies there are much less racial and social conflicts than in those with a small territory. In the political units with small spaces (abodes) the populations are more pessimistic, arrive earlier at a mature spirit of nationalism, have a psychology marked by the spirit of locality, are stagnant and lack virility. Such is a part of Ratzel's theory of space or *Raum*.¹⁵⁸ Everybody who knows a little history may easily see the fallacious character of the theory. It is hard to find more optimism in the populations of Russia or China compared with those of Switzerland or of the Netherlands. It is still harder to believe that within such vast political bodies as China, the previous Austria-Hungary or Turkey there has been less racial, national and social conflicts and struggles than in Denmark or Switzerland or Norway. The small Balkan states have aspirations for expansion and militarism at least as intense as those of large bodies politic. In brief, the facts completely contradict this famous theory.¹⁵⁹

¹⁵⁷ See RATZEL, *Politische Geographie*, Chaps. XII to XV.

¹⁵⁸ In a modified form the same theory is set forth by Simmel, without mentioning the name of Ratzel. See SIMMEL, *Soziologie*, Chap. IX, pp. 614-708.

¹⁵⁹ See the detailed and careful criticism in VALLAUX, *Le sol et l'état*, Chap. V. There are plenty of other theories which try to establish correlations between the character of geographic environment and optimistic or pessimistic moods of societies. For instance, Sir Archibald Geikie in his *Scottish Reminiscences* claims that the grim character of the Scots is due to the gloomy valleys, cloudiness and the inclement winter of Scotland. Draper contends that differences in climate are responsible for differences in moods of the populations of the northern and southern states of the United States. Letourneau attempts to explain the mysterious and melancholy character of the literature of the peoples of northern Europe through their gloomy geographic environment: long winters, long nights, vast forests and so on. Such correlations are very numerous. There is no need to say that they cannot be taken seriously. The very fact of a predominant mood ascribed by the authors to a given population is very questionable. They have not even tried to show why, for instance, they think that the character of the Scots is more grim than that of the Russians or the Chinese or of any other people. The real situation in this respect is probably much more complex, the national character being

Correlation Number 3 Matteuzzi, probably better than any other geographer, has tried to show how geographical conditions were responsible for the political organization of ancient Egypt, Assyria, Persia, Greece, Rome and so on. Here is a sample of his "explanations."

In Egypt, a centralized political despotism was due to the plains of the Nile and the Nile's irregular overflows. Every district needed water and tried to abduct it upon its territory. In this way many conflicts between the districts arose and the weaker ones suffered.

In order to protect the rights of the weaker districts and to coordinate the system of distribution of the water of the Nile among the districts, Ancient Egypt had to create a political power which would be able to control the matter. In this way the Nile determined not only the physical but the political structure of Egypt also.

Through the same factor he explains the appearance of castes in Egypt. In a similar way, irregular overflowings of the Tigris and the Euphrates were responsible for the centralization of power in the hands of one despot in Assyria and Chaldea.

In Persia there are no rivers through which to explain the unlimited Persian monarchy combined with the system of satraps. Therefore Matteuzzi makes the Persian mountains responsible for the Persian political system. In Phœnicia, the republican system was due to the character of the seashore and mountains which facilitated an isolation of the parts. In Greece, the political organization was due to the sea, the soil, and the mountains. As, however, this combination is a mere repetition of the previous geographic factors, so the author admits the influence of cultural imitation in Greece. There is no need to continue the list of Matteuzzi's explanations.¹⁶⁰ It is scarcely necessary to criti-

gum or melancholy in one respect, is likely to be very joyful in other respects. If even the statements of a predominant character of a people were true it would be necessary to prove that it is due to the geographic environment and not to other factors. Such attempts have never been made seriously. For these reasons all such theories are journalistic speculations and nothing more.

¹⁶⁰ MATTEUZZI, *Les facteurs de l'évolution des peuples* pp. 45 ff., and *passim*. Theories similar to Matteuzzi's are so common that they may be found in the majority of the textbooks of sociology. There they are given as something beyond doubt. The example of the Nile as responsible for the creation of the Egyptian political organization has become traditional "proof."

cize these theories. Matteuzzi's characteristics of the political régimes in many countries are inaccurate. For instance, his description of the Persian political organization is erroneous, several historians, and especially Pizzi, have drawn quite a different picture of the political institutions of Persia compared with that of Matteuzzi.¹⁶¹ This is also true of several other countries. This fact alone makes Matteuzzi's conclusions questionable. Further, the invalidity of the theory appears from the fact that similar results—despotic political regimes in Egypt, Chaldea, and Persia,—are ascribed to quite different geographic factors. In Egypt and Chaldea the political regimes were attributed to fertile plains and overflowing rivers, and in Persia, to mountains and deserts. The same applies to the republican regimes in Phœnicia, Greece, and Rome. If the laws of inductive logic have any value it is certain that Matteuzzi is not inductive. Furthermore, a brief survey of history and geography shows that similar political regimes, *e g.*, unlimited monarchies or republics, have existed under various geographical conditions and *vice versa*. In the same geographic environment we find the Samoans and the Maoris with an aristocratic and feudal system and the Papuans with scarcely any chiefs and with a system of communal partnership.¹⁶² The lack of the correlation becomes especially conspicuous when we consider the evolution of a political regime within the same geographical area. During the history of Athens, Rome, or of any European country the political system has changed several times while the geographic environment has remained practically unchanged. These changes give ample proof that the correlation between the two series of phenomena does not exist in any important degree. Thus Matteuzzi's hypothesis and hundreds of similar theories are doubtful.¹⁶³

Correlations Number 4 and 5. Among other fashionable geographic theories two hypotheses must be mentioned: one the so-called *Equatorial Drift*, and the other the so-called *Northward Trend of Civilization*. The essence of the theory of equatorial

¹⁶¹ See Pizzi, "Le istituzioni politiche degli Iranî," *Rivista Italiana di Sociologia*, 1902, March-June.

¹⁶² See the facts in THURNWALD, R., *op. cit.*

¹⁶³ See a detailed criticism of Matteuzzi's theory in KOVALEVSKY, M., *Sovremennyya Soziologiya*, Chap. IX.

drift is that peoples living at ease in the warm lowlands have been overrun by hardier races bred in the more rigorous climates of farther north or of higher altitudes¹⁶⁴ Even the fact of the existence of such a drift as far as it is a permanent and perpetual tendency is doubtful The only corroboration of this hypothesis is a series of facts like the conquest of India by the Aryans, that of China by the Mongols and Manchus, and of Greece and Rome by the barbarians, or the southward movement of the Toltecs and the Aztecs in Mexico, and the northward pressure of the Kaffirs and the Patagonians On the basis of such one sided and fragmentary data it is hardly possible to claim the existence of such a drift These facts may be confronted by more numerous instances of peoples, who, though located in southern areas have conquered peoples of the north The consolidation of the Sumerian and the Accadian Empires was started from the South (Ur, Lagash, Uruk), and extended far north, up to the Mediterranean The first consolidation of Egypt was made from the south (with a center at Hieraconpolis) and extended by conquests to the north During the second dynasty north or lower Egypt secured the upper hand, but during the third dynasty southern Egypt was again victorious Later on, such victories of southern and northern Egypt with a corresponding shifting of the metropolis (Memphis, Hieraconpolis, Thebais) were repeated many times, not to mention conquests of many northern peoples by the Egyptians The conquest of Greece and Rome by the northern barbarians is frequently used as an argument The records of history tell us of hundreds of conquests and long dominations over these northern peoples by the Greeks and the Romans Is it not true also that the conquests of Athens and Rome expanded not only toward the south but toward the north? Did not the Arabs conquer many peoples situated far north of Mecca and Medina? Did not the struggles of southern and northern China lead sometimes to the domination of the south over the north? Did not the conquests of Genghis Khan or Tamerlane or the Turks extend over an enormous area to the

¹⁶⁴ WARD R., *Climate*, p. 234-235 before Ward the theory was set forth by many geographers, beginning (in modern times) with Montesquieu see MONTESQUIEU *Spirit of Laws*, Vol I, pp. 238 ff., 284 ff., Lond., 1894 See also VALLAUX, *Le sol et l'état*, pp. 41 ff.

north? Is not the same true even in regard to the great migration of the peoples at the beginning of the Middle Ages when a wave of the Asiatic peoples moved from the south to the north subjugating and destroying all that lay in their way? In the history of Europe, Spaniards have not been always beaten by the northern Europeans. Military or cultural success has not always belonged to the peoples situated on the north. I have recalled a few of these elementary facts, which may be multiplied *ad libitum*, only because they are forgotten by the partizans of the Equatorial Drift theory. These show its fallacy.¹⁶⁵

The theory of the northward course of civilization consists in a claim that "the leadership in world civilization is inseparably linked with climate and that with advance in culture it has been transferred toward colder lands, and when extant culture has declined, leadership usually has retreated southward," and "that the part of civilization's banner has led steadily northward while culture was advancing and *vice versa*."¹⁶⁶ Corroboration of the theory consists in a historical indication that "civilization began in Egypt and Summeria, hot countries, then the leadership

¹⁶⁵ A part of this same theory is the idea, widely accepted, that the tropical and sub-tropical climates are responsible for the production of an impotent, idle and non virile type of people who are as a result destined to be dominated by the virile populations bred in northern climates. To discuss the value of this theory we must agree as to what is meant by the terms *tropical* and *sub-tropical*. When climatologists speak of these regions they refer to the area 40° or 45° north latitude to 40° or 45° south latitude. This includes most of the civilizations of ancient times as well as Japan and the southern portions of the United States. One who knows a little history can hardly agree that these populations are necessarily impotent. If they are non virile at the present time and have been conquered by northern peoples this has not always been so and may not continue in the future. Due to its great numerical preponderance the population of the more temperate zones naturally could have conquered small social groups situated in the tropics. Finally we see a very definite reawakening and great increase in activity among various social groups in Asia, India, Africa, Arabia, who have always been supposed to be destitute of force and capacity. This is an additional repudiation of the theory. In spite of its popularity it is likely to be fallacious. For a verification of these statements take the historical atlases of these countries, see where they are situated, study the character of their climate and environment, (for instance, in WARD, R., *Climate*, Chaps. I to VII) study their history and then what I have said just now will be clear. About the reawakening of these societies see PRINCE, A. E., "Europe and the Renaissance of Islam," *The Yale Review*, April 1926, also history of Japan in the 19th century.

¹⁶⁶ GILFILLAN, S. C., "The Coldward Course of Progress," *Political Science Quarterly*, Vol. XXXV, 1920, pp. 393, 399, see also the book by Stefansson. Earlier, the theory, in a slightly different form, was set forth by P. Maugeolle, in his *Statique des civilisations*, 1883.

was assumed by Babylonia, Crete, Phoenicia, Assyria, etc., tending always toward the north. Four southward movements may be noted all of which coincide with declines of civilization. Thus on the break up of the Roman Empire, civilization centered in Carthage and Alexandria as well as Constantinople, and presently in Damascus and Bagdad, then gradually it moved northward through the Middle Ages, passing the Roman high level about 1350 and attaining regions colder than ever before. On the diagram it is shown how the centers of civilization moved further from the cities mentioned to Venice, Milan, Antwerp, London, Paris, Berlin, New York, Chicago, Winnipeg, and Petrograd. Recently "Scandinavia has shown great cultural activity, as if preparing to lead the world. Russia is rousing herself from a sleep of ages. In 2000 the most virile architecture will perhaps be found (not in Berlin but) in Detroit and Copenhagen. In 2100 in Montreal, Christiania and Memel." The author further claims that "also within each nation civilization has moved coldward in progressing. The Greek civilization began in Crete and ended in Constantinople. The leadership of Italy passed from Sicily through Rome to Milan and that of Spain from Cadiz to Madrid and Barcelona." There are some exceptions but, according to the author, they only prove the rule. Such is the essence and proof of this clearly cut theory. The cause of all this is climate.

No doubt the theory is interesting and appealing, especially to the peoples who live in the north and have not achieved world leadership yet. However, one may doubt whether the time will come when the Lapps and the Eskimos will lead the world. Speaking seriously, the theory represents speculation backed by a one-sided and a defective selection of historical facts. The only true one in the theory is the statement that with the progress of civilization and with the growth of population, the area inhabited by men expands to the south and north, and many unfavorable places, inaccessible for less cultural peoples, become inhabited. Beyond this all three contentions of the theory are questionable. There are no definite and clear criteria of the rank of a civilization and of its progress and regress. Naturally such vagueness makes it possible for an author to arrange the regions

and the periods in any desirable form and hierarchy. Further, the use of the size of the leading cities as an adequate criterion of civilization may be questioned. On this basis we cannot say anything definite of the civilizations of Summeria, Accadia, ancient Egypt, or even Greece and Rome, because the data are either lacking or are uncertain. Aside from these considerations, which are enough to invalidate the theory, it is easy to prove the defective character of its three claims.

In order to prove the contention that in a period of decline the leadership of civilization shifts to the south, the author points to the shifting of authority in Egypt from the Lower to the Middle or from north to south. Meanwhile the historians of ancient Egypt say that the period of Middle Egypt with Thebae as the capital, and especially during the eighteenth and nineteenth dynasties was the climax of the Egyptian civilization rather than the period of its decline. On the other hand in the period of the decline of ancient Egypt, its center shifted not to the south but to the north (Sais and Alexandria). Still more fantastic is the author's distribution of Summeria, Accadia, Babylonia, Chaldea and Bagdad from the standpoint of their temperature, their comparative cultural level, and the progress and regress of civilization. (See his diagram on page 395.) His claim that "on the break up of the Roman Empire civilization," the leadership shifted again to the south, to Carthage, Alexandria, and Constantinople is almost as bad. In the first place Constantinople has the same latitude as Rome and its average temperature is colder by 4° F. In the second place, if Carthage and several other African and Asiatic cities showed some progression in the period of the decline of the Roman Empire, a similar gain was shown by northern cities such as Milan, Lyon, Trier, Ravenna, Tarraco and so on. They also increased greatly and gained in size, population, wealth, splendor, and cultural significance. In the history of Greece we find that the period of the decline of Greek culture was followed by a shifting of the political center of Greece not toward the south but rather toward the north. It went from Sparta and Athens to Boeotia and Macedonia. In these, as well as in many similar cases, we see only a shifting of the center of culture or of political influence to some other place

when an existing center begins to decline. Further, such cases as the appearance of quite new cultures, the Arabic culture for example, cannot be regarded as a progress or a regress in comparison with the Roman culture because they are quite heterogeneous.

The second doubtful contention of the author is that leadership in civilization steadily shifts to the north in the course of history. This theory is based principally upon the data of the nineteenth and the twentieth centuries. Is it not true that even during this recent period a series of new great powers—like Japan, Australia, Latin America, and South Africa,—have appeared? Is it not also true that in America, during the last few decades California has grown more rapidly than the majority of the northern states? Finally do we not see a re-awakening of the majority of the Asiatic and the old African societies (China India Arabia even Turkey), after centuries of sleeping? These and many similar facts only indicate that the centers of civilization are shifting in the course of time, and that the areas of civilization are expanding with the achievements of man. And that is all. If man began to pass over both poles, he also began to fly, to conquer, and to settle tropical forests, deserts, and other places uninhabited or slightly inhabited before. Besides, it is rather useless to talk about the leadership in civilization generally because of the vagueness of the concept. If we take leadership in material technique it undoubtedly has belonged, during the last two centuries, to the peoples of central or northern Europe, but before that it belonged to the Arabian, the Asiatic, the African, or possibly even to some American peoples. In the field of religion, Europe never has been a leader, even Christianity and Mohammedanism not to mention Confucianism, Buddhism, Hinduism, Taoism or Judaism, originated outside of Europe. In the field of philosophy and ethics, or even arts Europe scarcely has surpassed Asia and Egypt. I will not continue this line of thought. This is rather sufficient to show the inadequate character of the theory. All the facts given in corroboration may be easily confronted with facts of an opposite kind.

The above analysis of the representative correlations between geographical conditions and various phases of political and social organization shows that there may be some connection between

them but the relation is so indefinite that its existence may be questioned seriously. An attentive scrutiny of these sweeping geographical hypotheses shows more fallacies than scientifically proved statements.

19 CLIMATE AND GENIUS AND THE EVOLUTION OF CIVILIZATIONS

Among several theories dealing with this problem probably the best is that of Dr E. Huntington. For that reason I shall discuss mainly his hypothesis. Objections to this theory apply more fully to other less elaborated generalizations.

Huntington's theory of the relationship between climate and genius and the progress or the decay of civilizations is a logical inference from his three minor hypotheses, namely, that climate is a decisive factor in health, that it determines physical and mental efficiency, and that climate continually changes in time. From these premises he concludes that climate determines the growth and decay of civilizations, its distribution on the earth, and the historical destinies of nations. Since a civilization is the result of the energy, efficiency, intelligence, and genius of the population, and since these qualities are determined by climate, *ergo*, climate is the factor in the progress or regress of civilizations.

If these three premises are valid, the conclusion is true and *vice versa*. In the first part of this chapter I have attempted to show that the first and second premises are far from being valid. The author gives the third premise outstanding importance by saying that a large part of the reasoning of this book stands or falls with the hypothesis of climatic pulsations in historic times.¹⁶⁷ Nevertheless, this hypothesis is even more questionable than the first two. A perusal of meteorological records shows that climate has not changed to a very great extent in historical times.¹⁶⁸ A series of prominent specialists in climate say that popular (and Huntington's) belief in climatic changes are untrustworthy. Huntington's theory of the pulsation of climate is based on the study of the big tree rings in California. This method and the deductions made from it about the pulsation of climate have been

¹⁶⁷ *Civilization and Climate*, p. 7.

¹⁶⁸ See WARD R. *op cit* Chap. XI.

challenged seriously by the specialists ¹⁶⁹ In the third place, if we grant that pulsation of climate in California is accurately reflected in the "big tree" rings, it does not follow that in other places of the earth climate has been pulsating in the same way as in California. Fourthly, Huntington's method of computing the character of climatic changes and their exact periods in Ancient Greece or Rome or in any other historical country, is pure speculation, based on nothing. Besides, his own hypothesis is very elastic and he modifies it according to the circumstances ¹⁷⁰ This is sufficient to show the great extent to which the third premise is questionable and uncertain. Thus all three foundations upon which Huntington has built the ponderous structure of his sweeping generalizations are not sound. This fact is sufficient to vitiate his conclusions and to make them extremely doubtful. However, let us glance at the additional proofs and at some of the details of his philosophy. The proofs are given in the form of maps which show the distribution of climate on the earth and in Europe, the distribution of health rates in Europe, the distribution of civilization on the earth and in Europe, and the distribution of eminent men in Europe. All these maps, according to Huntington, show "a remarkable similarity." Health is high in the countries where the climate approaches the ideal suggested by Huntington, civilization is high in the same countries and low in those with poor climate and poor health, and the number of eminent men parallels the distribution of climate and health. Further in the past, Rome and various other countries grew and made progress during periods when their climate was near to the Huntington "ideal," and declined when their climate changed unfavorably. Shifting of the centers of civilization in the process of history has paralleled the moving of favorable climatic zones. Thus every thing shows a remarkable confirmation of Huntington's hypothesis. "Apparently climate influences health and energy, and these in turn influence civilization" ¹⁷¹ The author thinks that the hypothesis explains even a great many other characteristics of

¹⁶⁹ *Ibid*, p. 350 ff

¹⁷⁰ Compare e.g., *Civilization and Climate* Chap. XIV *World Power and Evolution* Chap. VIII *The Character of Races* Fig. 15.

¹⁷¹ See *Civilization and Climate*, Chaps. X to XVIII *World Power and Evolution*, Chaps. VIII to XIII, *The Character of Races*, Ch. XV.

various peoples and their historical destinies. On this basis, Dr Huntington interprets the history of Greece, Rome, Turkey, Germany and of many other countries.

Although these maps and generalizations are very interesting, I fear that they are very questionable. We have already discussed the validity of their basic premises. Since the correlations between the "ideal" climate and health and efficiency are not corroborated, maps constructed on these bases are even more questionable. The most questionable hypotheses of all are those drawn from questionable maps based on still more questionable hypotheses. Besides, what scientific value has a map (see Figs 22, 43, 44, in *Civilization and Climate*) where the zones of favorable or unfavorable climate are such that half of Europe and three quarters of Asia are shown as having an identical climate (the area extending from 25° to 70° of latitude and from 30° to 180° of longitude)? In fact, in this vast area, there are the most varied types of climate, and many parts of it more closely approximate the climate of unfavored zones than that of the favored regions. This applies to each of the five climatic zones into which Huntington divided the surface of the earth. It is possible to show a "remarkable similarity and coincidence" between anything and any contention by using this method.

The other maps of the distribution of health, climate, and genius are no better. I already have shown the inadequacy of death rates as a criterion of the health of various countries. I also have shown that even the correlation between "seasonal" fluctuations of death rates and of climate has not been proved as yet. However, Dr Huntington is not embarrassed by all these complications. He takes the death rates of various countries and puts them on the map in such a way that vast areas with very different rates appear identical, and *vice versa*. On the basis of this questionable procedure he points out the "remarkable coincidence with other maps" (See Maps nos 10, 11, 12 and 13 in *The Character of Races*). It is still more remarkable that the author admits some small "exceptions" to the rule such as the similarity of the climates of Japan and Korea (which contradict in regard to health and to rank of civilizations), or the relatively small number of eminent men in Belgium which contradicts its favorable climate.

and its place on the map of civilization. Another contradiction appears in comparing the map of civilization, where the indices of the civilizations of England and Scotland are 100 and 98, with the map of the number of geniuses, where a decidedly reverse relation is found. If it were possible to put all Russia (one sixth of the earth) in one climatic zone, and in one mortality or civilization zone, then why pay any attention to the small "exceptions"? Why not make the maps identical so that the relationship appears absolute? If large differences may be obliterated, why not all of them?

However, there is more. Even if we grant that the maps are accurate we may ask what are the proofs that differences in health, civilization, and in production of genius are due to variations in climate, as Dr. Huntington claims¹⁷². There is no proof except the map of climate inadequately constructed on a questionable basis. If it were accurate the correlation would not prove that the relationship were causal. Many other factors might explain the relationship or coincidence.

Let us go further. Let us grant that all of the shortcomings of the theory which we have already pointed out do not exist. Instead let us ask what would have been the map of the distribution of civilization, health, and genius in different countries, if Dr. Huntington had taken the period of 100 or 200 B.C. instead of that following A.D. 1600. We can say with certainty that the highest index of civilization and the number of men of genius for that period would have been the countries around the Mediterranean, and in Asia. At present these countries have a very low index. The countries around the Baltic Sea, England, and northern Europe which now have the highest indices would then have had the lowest index. The reason is simple. At that moment the populations of central and northern Europe were barbarian while those of Rome, Greece, northern Africa, China, India, and of many other Asiatic regions were the brilliant civilizations. Even if the maps were constructed for the period of 1840 the indices of such countries as Japan would be quite different. The same

¹⁷² His claim is so strong that he is certain that "the regions around the North Sea would probably *always* excel eastern and southern Europe in production of men of genius because of their different climates." *The Character of Races* p. 233.

can be said of numerous other phenomena which Huntington tries to explain through his climatic hypothesis. Why, for instance, do various countries, which remain in the same geographic environment, make rapid progress and outdistance peoples that were once superior to them and then afterwards decline themselves? Sometimes such transformations happen in relatively short periods such as one or two centuries.

Dr Huntington meets these contradictions by his hypothesis of the shifting of climatic zones and of the pulsation of climate. This theory, as we have pointed out, is not recognized as proved by the climatologists. I have tried to find climatic changes during the last fourteen hundred years in the area of England and northern and southern Europe, which would explain the waning rôle of the southern peoples and the increasing rôle of those of the north. I did not find any satisfactory answer. Furthermore, in Japan during the period from 1845 to 1890 there was no noticeable change in climate, and yet during this period the country changed from a poorly known and backward barbarian society into a world empire. The Japanese indices of health, civilization, and genius have changed considerably since 1845. The reader who tries to find an answer to this question in the works of Huntington (including the joint work with Fisher, on *Climatic Changes* New Haven, 1922) seeks in vain. Grant that climatic zones shift in historical periods. It is further necessary to show that their shifting and the changes in the leadership in civilization have been parallel, that any country in which the climate moves away from Huntington's ideal decays, that any country in which climate moves closer to the ideal progresses, and that all these processes occur exactly in the same periods. Only when these parallelisms are shown may the hypothesis approach validity. Such a proof is not found in Huntington's works. Here is a sample of his climatic interpretation of Rome's decay.

From 450 to 250 B C the climate (of Rome) was probably decidedly more stimulating than in any part of Italy today. That period ended in a great decline in rainfall and storminess. Then by 220 or 210 it had apparently fallen to about the present level. For a hundred years nearly the same conditions prevailed, and for a

century and a half the climate returned to a condition as favorable as in 240 B C¹⁷³

A reader of these lines may think Dr Huntington has at his disposal there the detailed record of the Meteorological Bureau of Ancient Rome, or at least some certain historical records which permit a definite characterization of the climatic changes. Unfortunately, the reader is wrong. Dr Huntington does not have such meteorological records because they do not exist, nor has he a single line of proof from the historical testimony of the contemporaries, nor even a quotation from some reliable historian of Rome. The quotations he gives from Dr W Simkhovich concern only the character of the soil, and, besides, Simkhovich's theory of the exhaustion of the soil is objected to by more competent historians of Rome¹⁷⁴. All that Dr Huntington has are the data concerning the growth of "the big tree rings" in California, on which he constructs a diagram of climatic pulsation in historic times. This task and the climatic deductions based on it are challenged by the climatologists. On the basis of this very hypothetical diagram which cannot give even the approximate rainfall, or fluctuations of temperature and storminess for California, alone, Dr Huntington, after considerably modifying the diagram, (see it on page 188, *World Power*,) drew detailed conclusions concerning Roman climate with an apparent accuracy for periods as short as ten years. The accuracy of his weather predictions may be envied by many meteorologists trying to predict changes in contemporary weather. It is obvious that Dr Huntington's theory of the pulsation of climate in Rome, in its essence, is nothing but a mere speculation adapted to the course of Roman history. The periods of the growth of Rome are characterized as the periods of good climate and *vice versa*. He does not deduce the character of historical processes from the established climatic data, but, on the contrary, deduces climatic data from the character of the historical processes. He concludes "there is a remarkable parallelism" between climatic and historical pulsations. Further, if changes of climate took place in Rome, it

¹⁷³ *World Power and Evolution*, pp. 190 and 192.

¹⁷⁴ See ROSTOWITZEF, M., *The Social and Economic History of the Roman Empire*, p. 495 and Chap. VIII, Oxford, 1926.

would be necessary to show that these changes were so great as to call forth the decay of Rome, and that they were much greater than the differences between the climates of England, Japan and Scandinavia. Huntington recognizes the climate of these places as invigorating and facilitating to the progress of civilization. Nothing of such a test has been done by Huntington. And it could not be done.

If these tests are not sufficient others might be used. For instance, it would be much more accurate to test the correlation of climate and genius by taking the exact place of birth of men of genius given in studies by Ellis, Odin, or of E. L. Clarke, J. McKeen Cattell, J. Philpitschenko, F. Maas, C. Castle, Charles H. Cooley, S. Nearing, S. Fisher, myself and others. In all of these studies the necessary data concerning birthplaces and the time of birth of these men are given. By obtaining the necessary climatic data, correlations could be made which would easily test the climatic hypothesis.

I shall give but one more argument. We know well that different social classes living in the same climate produce different proportions of men of genius.¹⁷⁵ We know also that the number of outstanding men in the same country from decade to decade or from century to century, or from region to region fluctuates, for instance there is the conspicuous increase of the proportion of the leading American scientists and captains of industry coming from the Middle and the Far West during the last two or three decades, these and hundreds of similar facts can hardly be reconciled with Huntington's theory.

We shall go no further. There may be some correlation between genius and civilization and climate but most of it remains to be discovered. Dr. Huntington's work in spite of the talent and energy he displays, cannot be recognized as conclusive.

The same conclusions apply to many other theories of this kind. We shall leave them without analysis.¹⁷⁶ May I add in conclu-

¹⁷⁵ See a number of these studies in my book *Social Mobility* Chap. XII.

¹⁷⁶ I have not given any analysis of such books as KELSEY, C., *The Physical Basis of Society*, TEGGART, F. J., *The Processes of History*, New Haven, 1918, or MACLENNER, H. J., *Democratic Ideals and Reality*, Lond., 1925, or SHALER, N. S., *Man and the Earth*, and several other books simply because they, being too general, do not add anything new either to the geographical theory or to its criticism. Recently published, G. Taylor's *Environment and Race* is even more speculative than Huntington's works.

sion, that in spite of the fact that I have been very severe with Dr Huntington in the preceding pages, I have the greatest respect for him and for his valuable attempts to build sociological theory on a sound objective basis. We must credit the school with many interesting and suggestive theories, and with several correlations, which are, at least, partly true. Any analysis of social phenomena, which does not take into consideration geographical factors is incomplete. We are grateful to the school for these valuable contributions. This, however, does not oblige us to accept its fallacious theories, its fictitious correlations, or finally, its overestimation of the rôle of geographical environment. We must separate the wheat from the chaff. After this "sifting" is made the remainder enters the storehouse of sociological principles.

CHAPTER IV

BIOLOGICAL INTERPRETATION OF SOCIAL PHENOMENA

BIO-ORGANISMIC SCHOOL

I PRINCIPAL TYPES OF BIOLOGICAL THEORIES IN SOCIOLOGY

THE human being is an organism and as such is subject to what are known as biological laws. This is the reason why many theories of both the past and the present have tried to interpret social phenomena as a variety of life phenomena. The extraordinary progress of biology during the last seventy years has given an additional impetus to biological interpretations in sociology. Hence the contemporary biological theories in social science. These are numerous and vary in their concrete forms but nevertheless, it is possible to group them in a relatively few fundamental classes. The principal concepts of the post Darwinian biology are organism, heredity, selection, variation, adaptation, struggle for existence and the inherited drives (reflexes, instincts, unconditioned responses) of an organism. Correspondingly we have 1 *The Bio Organismic Interpretation of Social Phenomena*, 2 *The Anthro-Racial School*, which interprets social phenomena in the terms of heredity, selection and variation through selection, 3 *The Darwinian School of the Struggle for Existence*, which emphasizes the role of this factor, and 4 *The Instinctivist School* which views human behavior and social processes as a manifestation of various inherited or instinctive drives. Besides these, there are many "mixed" theories, which in their analysis of social facts, combine biological factors with the non biological ones. These may be classed among the biological, as well as among the other sections of sociology. For the sake of convenience in this section, we shall discuss only the first three schools. The "instinctivist" sociological theories will be analyzed in the section of psychological sociology. The reason

for this is that they have been discussed principally by psychologists and are closely interwoven with other psychological interpretations. As to the "mixed" theories, they will be scattered throughout various sections of the book. Only one of these mixed theories—that of the *Demographic School*—is to be put within the biological section. It will be understood, however, that such an arrangement is purely conventional and a mere matter of convenience for the sake of orientation in the field of numerous sociological theories. What is important is the proper analysis of the theories rather than their placing within this or that conventional section. Let us now turn to the principal biological schools in contemporary sociology.

2 BIO-ORGANISMIC SCHOOL AND ITS RELATION TO OTHER ORGANIC THEORIES

The first principal school of biological sociology is represented by the bio organismic theories. The term "bio organismic" needs some explanation. Among the fundamental conceptions of society it is possible to discriminate four principal types: first, the *mechanistic* conception of society, as a kind of a machine system; second, the *nominalistic or atomistic conception* which sees in society nothing but individuals and does not recognize in it any superindividual reality; third, an *organic conception*, which views society as a living unity, recognizing its superindividual reality, its "natural" origin and spontaneous existence; fourth, a *functional conception* which does not care at all whether society is a mechanism or organism, natural or artificial, but which tries to view it as a system of interrelated individuals (synthesis of the sociological realism and nominalism). This system does not provide any reality beyond that of its members, but at the same time, it is different from that reality of the same individuals in their mutual isolation. The functional conception tries to ascertain the forms, the character, the uniformities (functional analysis) in fluctuation, variation, evolution of the relationships of the individuals who compose a social system, of the relationships of the groups of a system, and the relationships of one social system to other social systems.

Among these four conceptions, the organic has been the most

popular. Its characteristics belong to practically all varieties of the organic theory of a society. These varieties may be divided into three principal subclasses. 1 *Philosophical Organicism*, which contends only that society is a living unity, that it has superindividual reality, that it lives according to "natural" laws, and that it originated spontaneously. Philosophical organicism is often not concerned at all by any comparison of society with a biological organism, or with a "psychological entity" like "collective soul," "public opinion," "social mind" or anything of the sort. It has significance mostly as a conception opposite to the atomistic or nominalistic and mechanistic conceptions of society. Contrary to the former, it recognizes the super- or transindividual reality of society, and in opposition to the latter, it refuses to view society as an inanimate mechanism controlled only by exterior forces, and especially as an artificial mechanism created by man in the way of social contract or intentional volition. 2 The second form of the organic conception of a society is represented by *Psycho Social Organicism*. Psycho social organic theories have the above general characteristics of philosophical organicism. Sometimes the boundary line between them is almost intangible and philosophical organicism imperceptibly passes into a psycho social organicism.¹ But the less "refined" psycho social theories of organicism often go further. To the characteristics of philosophical organicism they add the contentions that society is a superindividual organism of ideas, representations, minds and volitions, that the social mind, or social volition, or social "self," or "social opinion" exists as a reality *in generis* beyond the reality of minds, volitions, opinions and representations of its members, and that in this same sense society is a kind of spiritual personality—a real social or group mind. Correspondingly in these theories there is often given a psychological personification of the social group, together with many analogies between the individual and the social mind. The theories represent a type of the psycho social interpretation.

¹As an example of such a "refined" organic theory which stands somewhere between the philosophical and the psycho-social organicism the conception of Th. Latt, developed in his *Individuum und Gemeinschaft* Leipzig Berlin 1919 may serve. See *passim* and pp. 6-7, 12, 17-18, 29-30, 102-105. Still more "refined" is C. Gini's "New Organicism" brilliantly set forth in his *Il neo-organismo* Catania, 1927. Practically it is almost identical with the functional conception of society.

of sociological realism. They are represented by the Sociologistic School. (See the chapter about this school.) 3 The third fundamental variety of the organic interpretations of society is given by *Bio Organismic Theories of Society*. Sharing all the principles of the philosophical organicism, biological organicism claims that society is nothing but a specific variety of *biological* organism. In its nature, functioning origin, development, variation,—in brief, in its whole life process, it exhibits the characteristics similar to those of any organism, is subject to the same biological laws, and like an organism, it has not only psycho-social, but physical reality. In their essence these theories represent an extreme type of sociological realism. We must not mix the bio-organismic theories with philosophical and psycho-social organic conceptions of society. They differ greatly from each other. The above shows also that while bio-organismic theories belong to the biological school in sociology, the other branches of the organic conception do not. In this chapter I am going to discuss only the bio-organismic theories. Psycho-social organicism will be discussed in the chapter on the sociologistic school. Philosophical organicism does not need a special discussion in sociology; its place is in philosophical treatises.

3 PREDECESSORS

Various samples of the above three types of the organic conception of society are as old as are the most ancient sources of social thought known to us. The comparison of a society, particularly of a state in its social classes, institutions, and social processes, with an organism, especially with man or with his body and soul, or with the parts of his body and bodily processes may be found in the ancient Hindu, Chinese, Greek, and Roman philosophical and social thought. Here are samples. In the ancient Sacred Books of India, four principal castes are depicted as created from the mouth, the arms, the thighs, and the feet of the Lord.² The king's power is pictured as composed of eternal particles of Indra, of the Wind, of the Sun, and so on.³ Punish

² See, for example, 'Laws of Manu,' *Sacred Books of the East*, Vol. XXV, I 31; example Oxford, 1886.

³ *Ibid.*, VI 4.

ment is compared with the son of the Lord and with a creature "with a black hue and red eyes" ⁴ Social initiation is regarded as the second birth,⁵ and so forth In the works of Plato, organic analogies are rather common "In the individuals there are the same principles and habits which there are in the State (1) spirit of passion, typical of the Northern peoples, (2) love of knowledge and wisdom, typical of the Greeks, and love of money, typical of the Phœnicians" Similar analogies in the properties of a body and society are numerous in Plato's works ⁶ The same is true of Aristotle In his "Politics" we find comparisons of the soul and the body with the upper and the lower classes, of the reason's control over affections, of the master's control over slaves, of the harmony within man with that within a body politic, and so forth In the famous Agrippa's Fable, the analogies are pushed to their limit In works of Cicero, Seneca, Florus, T. Livy, and other Roman and Greek historians, comparisons of the life cycle of a man with that of a society, which, like man, passes through childhood, maturity, and old age, of the birth and death of both, and so on, are again very numerous They sometimes are carefully developed into a systematic theory (See the chapter about cyclical conception of social change) Side by side with this, we find "the natural origin" of a society its development according to the laws of nature, especially according to the same laws which govern a development of an organism, the superindividual reality of a society, and its "organic" character, all indicated by various ancient Hindu, Chinese, Greek and Roman writers ⁷

The history of mediæval thought shows that, in spite of its predominant nominalism, "under the influence of the allegories of the Bible and the patterns set forth by Greek and Roman writers, the comparison of mankind and social groups to an ani-

⁴ *Ibid.*, VII 25, 14

⁵ *Ibid.*, II 148, 169-170

⁶ Plato, *The Republic*, tr. by Jowett, N. Y., 1874, pp. 435-436, 462, 557 and others

⁷ See the survey and the "organic" citations from Aristotle, Cicero, Livy, Seneca, St. Paul and others in von KRIEKEN A. TH., *Ueber die sogenannte organische Staatstheorie*, Leipzig, 1873, pp. 19-26, TOWNE, E. T., *Die Auffassung der Gesellschaft als Organismus*, pp. 15-24, Halle, 1903, BARKER E., *The Political Thought of Plato and Aristotle*, pp. 127, 138-139, 276-281, N. Y., 1906.

mate body was generally adopted and stressed" ⁸ This reminds one of the organic analogies used by writers in the dispute between the secular and the ecclesiastical powers, of John Salisbury's *The Policraticus*, of the works of Nicolas of Cues, and of other thinkers of the Middle Ages, including even such rather nominalistic philosophers as Saint Thomas Aquinas. Further theories of Machiavelli, Campanella, Guicciardini and others, claimed that the State, like a man, passes through the cycles of childhood, maturity, and old age, and that, like an organism, it experiences the periods of vigor and sickness ⁹

Later on, in spite of the social physicism of the theories of the seventeenth century, and the atomistic and individualistic character of the theories of the eighteenth century, organic analogies and various organic conceptions continued to be used even by the social physicists and individualists. The difference between these theories and a real organicism is principally that the mechanists of the seventeenth century compared society and state with "artificial man." Pascal's famous comparison of society with a man, Hobbes' *Leviathan*, with its detailed organismic analogies, and similar comparisons used by Fortescue, Althusius, Grotius, J. Bodin and others may be contrasted with the physiocratic conception of the economic organization of a society as a "natural, living unity," but they are all samples of the organic conceptions of that time ¹⁰. The end of the eighteenth and the beginning of the nineteenth centuries were marked by a conspicuous reaction of social thought against the atomistic, individualistic, and mechanistic conceptions of the preceding period. This reaction assumed the form of a revival of various organic interpretations. Contractual theories of society, theories of its artificial nature, and sociological atomism theories all lost credit. Their place was

⁸ VON GIERKE, OTTO, *Political Theories of the Middle Age*, tr. by F. Maitland, Cambridge, 1900, notes, pp. 103-104, 112, 122 ff.

⁹ See for this period, VON GIERKE *op. cit.*, *passim*, VON KRIEKEN, *op. cit.*, TOWNEY, *op. cit.* GUMFLOWICZ L. *Geschichte der Staatstheorien*, Part II Innsbruck, 1926. JANET, P., *Histoire de la science politique*, Paris, 1887, DUNNING, W., *Political Theories, Ancient and Medieval* N. Y., 1902.

¹⁰ See about this period, COKER, F. W., *Organismic Theories of the State*, pp. 14-16, N. Y., 1910. DUNNING, W., *Political Theories from Luther to Montesquieu*, N. Y., 1913, JANET, *op. cit.* DENIS, "Die Physiokratische Schule und die erste Darstellung der Wirtschaftsgesellschaft als Organismus," *Zeitschrift für Wirtschaftsgeschichte*, VI, 1897.

occupied by the theories of De Bonald, J de Maistre, E Burke, Adam Muller, Herder, Lessing, Fichte, I Kant, Shelling, H Leo, Hegel, and of others, in which various characteristics of organic conception were laid down¹¹

Since that time, the three above types of organic conceptions,—philosophic, socio-psychological, and biological, have been again and again laid down by a great many authors K C Krause, H Ahrens, F J Schmittthener, G Waitz, F A Trendelenbourg Saint-Simon, Auguste Comte, J v Gorres, C Th Welcker, F and Th Rohmer, K Volgraff, F J Stahl, and to a certain extent Lorenz v Stein, A Lasson, Otto Gierke, K S Zacharia, C Frantz, J K Bluntschli, and finally H Spencer, have, in this or that way, developed various organic interpretations of state, society, and social phenomena¹² The great progress of biology and the theory of evolution in the second half of the nineteenth century gave an especially strong impetus to the development of the bio-organismic theories in sociology In this way we come to the contemporary bio-organismic interpretations of social phenomena Let us turn to them

4 CONTEMPORARY BIO-ORGANISMIC THEORIES IN SOCIOLOGY

The most prominent representatives of this current of sociological thought are P Lilienfeld, (a Russian of German stock, 1829 1903),¹³ A Schaffle (a German professor and statesman, 1831 1903),¹⁴ R Worms, (a French professor, permanent secre

¹¹ Concerning that period see COKER, *op cit*, pp 16-31 MOULINÉE, H, *De Bonald*, Paris, 1915 DE MAISTRE J, 'Considérations sur la France,' 'Sourées de Saint Petersburg' in his *Oeuvres complete*, Lyon 1891-2 Vols I-V MERRIAM C E, *History of the Theory of Sovereignty since Rousseau*, N Y 1900 MICHEL H, *L'idée de l'état* Paris 1898 BURKE, E, 'Reflections on the Revolution in France,' in *Works*, Bohn's ed Vol II SALOMON G "Die Organische Staats- und Gesellschaftslehre, in WORMS R. *Die Soziologie*, pp 111-124, Karlsruhe, 1926

¹² About this period see COKER, *op cit* pp 31 139 See there the works of these authors and other references See also HAFF K, *Institutionen der Personlichkeitslehre und des Körperschaftsrechts*, 1918 MOULINÉE, *op cit* KAUFMANN *Über den Begriff des Organismus in der Staatslehre des 19 Jahrhunderts*, Heidelberg, 1908

¹³ Principal works of P Lilienfeld are *Gedanken über die Socialwissenschaft der Zukunft*, 5 vols, Mitau, 1873-81, Berlin, 1901 *La pathologie sociale*, Paris, 1896 *Zur Verteidigung der Organischen Methode in der Soziologie*, Berlin, 1898 'La methode graphique,' and 'L'évolution des formes politiques' in *Annales de l'institut intern de sociologie*, 1896

¹⁴ The most important work in this respect is Schaffle's *Bau und Leben des sozialen Körpers*, 1875-6, 3rd ed, 1896, 2 vols

tary of the International Institute of Sociology and editor of the *Revue internationale de sociologie*, 1869-1926)¹⁵ and J. Novicow (a Russian, 1849-1912)¹⁶. To these names a series of others may be added who, in a somewhat milder form, have professed the same bio-organismic principles. Such a one is A. Fouillée (a prominent French philosopher, psychologist, and sociologist, 1838-1912) who tried to reconcile the organismic and the contractual theories in the form of an interpretation of a society as "a contractual organism"¹⁷. More recently there appeared a series of works which continued to maintain all the essential principles of the bio-organismic interpretation. Such, for instance, are the works of La Ferrière,¹⁸ Kjellén,¹⁹ M. Roberts,²⁰ and of several others.²¹

In view of the considerable similarity of the basic principles of all these authors, of the well known character of their theories, and of the questionable value of their conclusions to the science of sociology, we may survey all these theories summarily, without a special analysis of the interpretations of each. Proceeding in this way, we may sum up their basic principles in the following manner. First, the society or social group is a special kind of an organism in a biological sense of the word. Second, being an organism, society resembles, in its essential characteristics, the constitution and the functions of a biological organism. Third, as an organism, society is subjected to the same biological laws as those by which a biological organism functions and lives. Fourth, sociology is a science which is to be based primarily upon

¹⁵ For Worms' organismic, the most enlightening works of Worms are *Organisme et société*, 1896. *Philosophie des sciences sociales*, 3 vols., Paris, 1903-7, 2nd ed., 1913-20. *La sociologie, sa nature son contenu, ses attaches*, Paris, 1921.

¹⁶ Of Novicow's works the important in this respect are *Conscience et volonté sociale*, Paris, 1897. *Les luttes entre sociétés humaines et leur phases successives*, Paris, 1896. *La théorie organique des sociétés, défense de l'organicisme*, Paris, 1899. *La critique de Darwinisme sociale*, Paris, 1910.

¹⁷ Of the numerous works of Fouillée, see his *La science sociale contemporaine*, 1880. 4th ed., Paris, 1904.

¹⁸ See LA FERRIÈRE, *La loi du progrès en biologie et en sociologie*, 1915, Paris. see also his "L'organisme sociale," *Revue internationale de sociologie*, 1915, Nos. 3-6.

¹⁹ See KJELLÉN, *Der Staat als Lebensform*, 1917.

²⁰ See ROBERTS, M., *Malignancy and Evolution*, Lond., 1926.

²¹ Besides the sociologists, several biologists have set forth a bio-organismic theory. See HERTWIG, O., *Die Lehre vom Organismus und ihre Beziehung zur Sozialwissenschaft*, Berlin, 1899. *Allgemeine Biologie*, Jena, 1906.

biology. Such are the essential characteristics of the bio-organic conception of society.

'What is a society?' asked Spencer and answers: Society is an organism. After this he indicates that the social and the biological organisms are similar in the following important respects: both have phenomena of growth; in the process of growth both exhibit differentiation in structure and functions; in both there exists an interdependence of their parts; both are composed of units (cells and individuals); destruction of an organism or of a society does not always mean the destruction of the units of which they are composed; both have a special sustaining (alimentary) system, a special distributive system (vascular and circulatory system in an organism and arteries of commerce in a society) and a special regulating system (nervous system in an organism and governmental system in a society). Side by side with these similarities there are, however, three important dissimilarities. First, an organism is symmetrical while society is asymmetrical; second, an organism is a concrete aggregate while society is a discrete one; third, in an organism consciousness is concentrated in the nervous system while in a society it is diffused throughout the whole aggregate so that society does not have a special social sensorium.²² Following this plan H. Spencer analyzes in detail society's characteristics, functions, systems and processes.

P. Lilienfeld's views are as follows: Human society, like natural organisms, is a real entity (*ein reales Wesen*). It is nothing but a continuation of Nature, a higher manifestation of the same forces which lie at the basis of all natural phenomena. Representing a system of mutual relationship and interaction of human beings, it has the same characteristics as a biological organism in its functions of multiplication, growth, differentiation, sickness, death, regeneration, integration of parts, cohesion, purposivity, spirituality, structural perfectibility and the storing or capitalization of energy. In these characteristics the biological and the

²² SPENCER, H. *The Principles of Sociology*, Vol. I, Part II, V. 1, 1910. *The Inductions of Sociology* *passim* and pp. 447-462.

social organisms are similar, and both differ from an inorganic body²³

'The biological organism is a united mass of a living substance which is capable of preserving itself under certain exterior conditions. The same is true in regard to an ants' hill and to human society. Using M. Verworm's classification of organisms Liliensfeld indicates that there are five principal classes: the cell (complex of cells), organ (complex of tissues), person (complex of organs), and state or society (complex of persons). Thus society is only the highest form of an organism. Like an organism it is a living unity absorbing the ingredients of its environment and having the process of metabolism. Its individuals are as dependent on the whole society as a cell in an organism and like it society has its nervous system and its reflexes. Within it besides its members there is a material substance which corresponds to the intercellular substance or space in an organism. The principal difference between a social and a biological organism is that society is somewhat less integrated than an organism.²⁴ But again in this respect there are three degrees of organisms: plants which lack an ability to move in their parts and in their whole; animal organisms which have an ability to move as a whole and social organisms which can move in their whole as well as in their parts (individuals). Thus this difference means only that the social organism is the highest class of organism and nothing more.²⁵ Some have raised the objection that in an organism the cells cannot move freely or belong at the same time to several organisms or even shift from one organism to another while in a society individuals can move, can belong to several societies and can shift from one society to another. To this Liliensfeld answers that a greater mobility of individuals in an organism means only that it is an organism of a higher class. Wandering cells are also in an organism, some of them passing even from one organ to another (spermatozooids). Another objection is that contrary to an organism society does not exhibit the phases of birth and death. Liliensfeld meets this by

²³ LILIENSFELD *Die Menschliche Gesellschaft als realer Organismus* Vol. I pp. 1, 34 ff. 58-68. M. tau 1873.

²⁴ LILIENSFELD *Zur Verteidigung* pp. 9-12, 15, 21 and *passim*.

²⁵ *La pathologie sociale* Ch. I and pp. 30 ff.

indicating that, like an organism, one society often gives birth to another, and that societies may die. The objection that society differs from an organism in that it is asymmetrical, the author meets by a statement that social hierarchy is a specific kind of a symmetry in the social body. The objection that an individual has a "self" and a specific integrated consciousness, while a society does not, is met by an indication that individual consciousness or self is also mosaical, and that it represents an ever-changing process similar to the public mind and the governmental activity in a society. Other objections and analogies ascribed to the organismic theories are declared by Lilienfeld childish. They belong not to the organismic theory, but to its critics, who unfairly ridicule the theory and ascribe to it the analogies which do not belong to it.²⁶ The general conclusion of Lilienfeld is that "*nihil est in societate quod non prius fuerit in natura*." Sociology is to be based on biology and has to apply all its laws to the scientific interpretation of social phenomena. Without the organismic principles a scientific sociology is impossible, and *Sociologus nemo, nisi biologus*.²⁷

The theory of Schäffle is moderate, especially in the second edition of his work, where he even stresses conspicuously the difference between a society and organism, but it is still bio-organismic in its realization. The leading principles of his sociology are similar to the above, for his "social morphology" is characteristic of Schäffle's fivefold classification of "social tissues," which are homologous to corresponding tissues in an organism. Such social phenomena as the army police clothing, roofs, safes and fortresses are nothing but "a protective social tissue," which corresponds to the epidermal tissue of animals. Various technical and practical social arrangements are as nothing but the muscular social tissues which correspond either to the cross striped voluntary or to the smooth involuntary muscles of an organism. Educational and intellectual institutions of a society correspond to the nervous system.²⁸ Having studied the

²⁶ *Zur Verteidigung* pp 48-57

²⁷ *Ibid*, pp 9-31, 56-57. *La pathologie sociale*, Chap I, *Die Menschliche Gesellschaft* pp 398-399

²⁸ See SCHÄFFLE *Bau und Leben des sozialen Körpers* 1896 Vol I Books II IV, pp 111-175, and *passim*

tissues, he proceeds to study the social organs made up of these social tissues. Schaffle studies the state from this organismic standpoint.

More conspicuous is the biological organicism in the theory of J. Novicow. Like Liliensfeld, in spite of a crushing criticism of the theory at the International Congress of Sociologists, he still insists that the criticism did not set forth any destructive objection against bio-organicism as a theory, which claims that the laws of biology are "equally applicable to cells, to aggregates of cells, to plants or animals, and to the aggregates of individuals styled society." "Since society is composed of living creatures, it can be but a living creature." He further answers the principal objections set forth against the organismic theories. In an organism as well as in a society the struggle goes on not only with heterogeneous bodies, but between various parts of each of them also. The difference between the concreteness of an organism and of a society is very relative because our conception of space is very subjective. To a creature millions of times less than a man a man's body would appear as a whole continent with oceans, seas, mountains and so on. That is it would appear quite a discrete thing. On the other hand, to a creature millions of times greater than man, many societies would appear quite a concrete body. Finally, spacial discreteness or concreteness is not important for an organism, what is important is the functional interaction and interdependence of its parts regardless of their spacial nearness. From this standpoint, interdependence of England and New Zealand is no less than the parts of an organism. Furthermore, he ridicules the objection that the members of a society can live autonomically while there has not been any isolated foot which would go and live alone. "A sprout of a plant may be transplanted but a man's head could not be 'ingrafted' into another body. Does this mean that man is not an organism?" asks Novicow.²⁹

He further proceeds to develop his theory of social volition and consciousness as they exist apart from individual volitions and consciousness. Contrary to the other organicists who see the

²⁹ *Conscience et volonté sociales* pp. 1-9. See also his paper in *Annales de l'institut international de sociologie* Vol. IV.

organ of such social sensorium in government, Novicow sees it in the élite of a society, in its intellectual aristocracy. The members of such an élite are "real, sensitive cells of a society," they are "real starters" (*le véritable moteur*) of all social actions. Through their production of ideas and sentiments they (like receptors in the nervous system) transmit the stimuli to "the effectors" (government, etc.), and in this way perform the rôle of a social nervous system. "Every social action is carried on through persuasion. This persuasion is a volition which originates in the brain of an élite and is transmitted to other brains." Such, in brief, is the organ and the mechanism of social consciousness and social volition.³⁰

R. Worms, in his monograph *Society and Organism*, showed himself an extreme bio-organicist. Later on, however, he recognized many shortcomings of the extreme organismic theories,³¹ though the fundamentals of bio-organismic conception he supported throughout his life. He states that in origin, structure, and functions, society is analogous to organism. His analysis of the similarities and the dissimilarities of society and organism he sums up in the following way: "We must conclude," he says, "that though there exist unquestionable differences between the societies and the organisms, they are not so important as to separate them radically from each other."³²

It is practically useless to continue a detailed survey of the character and the contents of a great many other bio-organismic works. It is enough to say that in the way of analogies there has been displayed a real ingenuity in inventing the most startling comparisons, which try to define even the sex of various social organisms (for instance Bluntschli thought that the state is a masculine organism while the Church is a feminine one),³³ and in finding the social homologues to the heart, circulation of blood, stomach, lungs, arms, hair, head, and what not. At the same

³⁰ *Conscience et volonté sociales*, pp. 43-44, 51 ff., 69-74, 97-102, 137 and *passim*.

³¹ See his acknowledgment of this in WORMS' *Philosophie des sciences sociales*, Vol. I, 1913, pp. 47-48, also his *Les principes biologiques de l'évolution sociale*, Paris, 1910.

³² *Philosophie des sciences sociales*, p. 55. See Chap. III.

³³ See THUNER, J. K., *Lehrer vom modernen Staat*, Vol. I, p. 23, Stuttgart, 1875, *Gesammelte kleine Schriften*, p. 284, Nordlingen, 1879. Generally speaking, Bluntschli's work is perhaps one of the most logical and conspicuous examples of bio-organismic theories.

time, in regard to "bio-organicism," the theories vary from an extreme biologism to a mild, rather bio-psychological, interpretation of society, including even such conceptions as Fouillee's "contractual organism." Let us now discuss briefly to what extent these theories may be recognized as valuable from the scientific standpoint³¹

5 CRITICISM

In bio organismic theories we must strongly discriminate between two different classes of statements. The first class is composed of the statements that sociology has to be based on biology, that the principles of biology are to be taken into consideration in an interpretation of social phenomena, that human society is not entirely an artificial creation, and that it represents a kind of a living unity different from a mere sum of the isolated individuals. These principles could scarcely be questioned. They are valid. They are shared, moreover, not only by the bio organismic school, but by a great many other sociological schools. In this sense they do not compose a monopoly of the bio organismic theories, or their specific characteristics.

Quite different should be our conclusion in regard to the second set of the bio organismic conceptions. This set is composed of the conclusions inferred from the above general principles. Since

³¹ In view of the enormous amount of literature devoted to the criticism of the bio-organicism theories, there is no necessity to make my criticism detailed. Of this literature see *Annales de l'inst intern de sociol*, Vol IV, which contains the papers of Liliensfeld and Novicow as the proponents of the bio-organicism theories and the papers of G. Tarde, L. Stein and other critics of bio-organicism. See also the quoted papers of Coker, Salomon and others. In addition vide GIDDINGS F. *Principles of Sociology*, Book IV Chap IV, N Y., 1896. BARTH, P., *op cit*, pp 306-424. DUPRAT, *Science sociale et democratique*, 1900, pp 59-68 ff., HAFK K., "Kritik der Genossenschaftstheorie," *Jahrbuch für Soziologie*, B II, pp 277-299. BARNES, H. E., "Representative Biological Theories of Society," *Sociol Review*, Vol XVII, 1925. LITT TH. *Individuum und Gemeinschaft*, 1924, GUMPOWICZ, L. *Gesch d Staatstheorien*, pp 396 ff. WILLOUGHBY *The Nature of the State*, pp 32-38, N Y., 1896. LEROY BEAULIEU, *L'etat moderne et ses fonctions* Paris, 1890, Book I, Chap IV, KISTIAKOWSKI B., *Gesellschaft und Einzelwesen* Berlin, 1899. STEINMETZ, K., "Die organische sozialphilosophie," *Zeitschrift für Sozialwissenschaft*, 1898. SMALL A., and VINCENT, *Introduction to the Study of Society* 1894. PATTEN, S., "The Failure of Biological Sociology," *Annales of the Amer Acad Polist Social Sciences*, Vol IV, 1896. MIKHAILOVSKY, N. K., *What Is Progress?*, (Russ.) *Darwinism and Social Sciences, Analogical Method in Social Sciences in Works of Mikhailovsky*, Russ., Vol. I. KAREEFF, N., *Introduction to the Study of Sociology*, Russ., Chap IV 1907.

biological laws are applicable to human beings, they conclude that all human society is an organism. Since human society like any organism is composed of living individuals, they infer that society ought to be similar to an organism in society's structure, organs, and functions. Hence, the analogies of the school. These propositions compose their specific characteristics. By it, the school differs from many others which share the statements of the above first class, but refuse to accept the conclusions of the second class. It is true that the bio-organismic sociologists, being confronted with severe criticism, have many times stressed the point that their organismic analogies do not compose an important part of their theories, being, in fact, nothing but an illustration of their principles, a mere *façon de parler*, no more³⁵. And yet, contrary to these declarations, they have continued to use these analogies over and over, filling with them hundreds of pages of their works, and to use them as the principal argument of their contentions. Besides, if we take off these analogies and the identification of society with an organism from these theories, there remains very little in them. Their originality and specific nature disappear, and through that, disappears the school itself. In this case it dissolves among a great many other theories which in various ways profess the first set of the principles. For these reasons, the second set of the statements is to be taken as the

* For instance H. Spencer emphatically protested against an interpretation of his analogies in any other than an 'illustrative' sense. "I have used the analogies elaborated, but as a scaffolding to help in building up a coherent body of sociological inductions. Now let us drop this alleged parallelism between individual organization and social organization. Let us take away the scaffolding, the inductions will stand by themselves." "This emphatic repudiation of the belief that there is any special analogy between the social organism and the human organism, I have a motive for making" (in view of a misrepresentation of Spencer's conceptions). See SPENCER, H., *The Principles of Sociology*, Vol. I, N. Y., 1910, p. 270, and the foot note on p. 592. See also pp. 214-223. Even such an extreme organicist as P. Lihenfeld no less emphatically protests against various comical analogies and their unfair interpretation. See his *Zur Verteidigung der organischen Methode in Soziologie*, pp. 22-28, Berlin, 1898, the same is true of J. Novicow. See Novicow, *Conscience et volonté sociale*, Paris, 1897, on page 9, he writes: "Certainly social organisms are entirely different from biological organisms. There is no morphological resemblance between them. It is childish to try to establish any similarity of this kind." A. Schäffle, in the second edition of his *Hau und Leben des Sozialen Körpers*, 1881, p. VIII, dropped the analogies of the first edition to avoid their misinterpretation. A similar thing was done by R. Worms. See WORMS, *Philosophie des sciences sociales*, Vol. I, pp. 47-52, Paris, 1913, *Soziologie*, German tr., 1926, p. 37. The same is true of other prominent organicists in sociology.

"*differentia specifica*" of the bio organismic theories. They stand and fall with these principles. If they are true, the school remains, if they are wrong, the school falls down.

It is easy to show the fallacy of these principles. Since man is an organism, the laws of biology are applicable to him, but from this it does not follow at all that human society is a biological organism. The rules of arithmetical addition or multiplication are equally applicable to an arithmetical computation of men, cattle, stones, and what not. Does it follow from that that man is a cow, or that a cow is a stone, or that all these objects are identical? The laws of mechanics or chemistry are equally applicable to man, stone, or plant. Does it follow from this that a man, a plant, and a stone are the same things? In a similar way, from the supposition that the laws of biology are applicable to man, it does not follow at all that man is a cow, or a plant, and still less is it possible to infer that the human society is an organism. In other words, the applicability of some rules or formulas of uniformities (laws) to various objects, does not mean an identity of the nature of these objects.

We may agree also that human society is composed of a living substance, that is, of human beings. But it is fallacious to infer from this that human societies are but biological organisms. In the final analysis, either a stone, an animal, a plant, or a man is composed of atoms or electrons. Does this mean that stones, plants, animals, and men are identical things, and can be identified with one another in their structure, organs, or functions, or that they could be interpreted with the same principles in their composition and activity? We may agree that human society is a kind of a unity in which its members are interdependent upon each other. It is, however, fallacious to conclude from this that human society is an organism, because an organism is also a kind of unity. The solar system, an automobile, a plant, an animal, a river, or a man, all represent a kind of a unity with interdependent parts. Does it follow from this that human society is the same unity as the solar system, a car, a plant, a river, or that all these objects are identical?

As a unity, human society may disintegrate, the human being may die, a stone may be broken into pieces, or a river may dry

up In all these cases, each of these unities disappears Is it possible to infer from this that the various processes of the disappearance of each unity are identical, and that for this reason the corresponding phenomena (objects) are identical also? Evidently not Meanwhile, the bio organismic analogies of a similarity of the organismic processes with the social (though both show the phenomena of growth, sickness, multiplication, differentiation and so on) represent just such a reasoning and such an inference If a logician needs an excellent illustration of a fallacy in analogical reasoning, he cannot have a better example than the bio-organismic analogical methods The above is enough to make clear their "organic" fallacy It is needless to make a detailed criticism of their organic analogies Their weakness has been ridiculed and criticized more than enough There is no need to repeat these well based objections

One point, however, is to be mentioned This is the practical inferences made by various bio organicists from their bio-organismic premises Some of them used their analogies as an argument in favor of monarchy, administrative centralization, absolutism, or socialism, as a form of the greatest integration of social organism (*e g*, Bluntschli) Some others, for instance Spencer, used them to support decentralization, individualism, liberalism, and a restriction of governmental interference This shows, in the first place, the vagueness of logical content of these bio organismic principles, which, being the same, permit persons to make quite opposite inferences It shows also the unscientific nature of these "applied" inferences In their essence, they are nothing but Pareto's "derivations," "ideologies" which are intended not so much to describe the reality, as it is, as to supply a "justification," "beautification," or "motivation" of the various "appetites," "aspirations," and "desires" (residues) of their authors Being such, they are neither scientific, nor non scientific, but extra scientific and outside the path of science³⁰

³⁰ The modern variety of such ideologies is given in the form of various theories of solidarity, beginning with Foullée's "contractual organism" and ending with L. Bourgeois' "solidarity," O. Spann's "universalism," Th. Litt's "Lebens einheit," the nationalistic "patriotism," socialistic "collectivism" the ideologies of the Catholic-monarchical movement, represented by *L'action française*, Fascism's theories of syndicalism, and so on. All these "ideologies" are based on an "organic" conception of a society, either in its philosophical, or psycho-

As to the practical value of the bio-organismic analogies they may have some 'pedagogical' worth in supplying concrete images which help to visualize the abstract and complex structure of a social system but this value is limited. Besides, through the misuse of analogies their value is greatly over-weighted by their scientific fallacies. Therefore G. Tarde's severe conclusion about the bio-organismic theories seems to be right in essence.

The conception of social organism has been somewhat useful only

sociologicistic or bio-organismic forms. From the theoretical premises of these organic doctrines each of these ideologies infers an applied political program to be carried on and a series of practical social, political and moral propositions. Thus what ought to be done is outlined by each of these ideological movements according to the tastes, desires and inclinations of their authors. Each of them however tries to 'base' or to 'justify' and to 'prove' his practical program with the organic principles. After the above it must be clear that all these different ideologies are nothing but derivations in Pareto's sense and all of them are unscientific which does not hinder their being socially useful or harmful because scientific truth and social usefulness or harmfulness are in different categories and are far from being always coincident. Samples of these ideologies are given in the following works: MAURRAS CH. *Romanticisme et révolutions* Paris 1912; DELAFOSSE J. *Théorie de l'ordre* 1901; COTTIN P. *Positivisme et anarchy* 1908. These ideologies represent the monarchical, clerical or traditionalist aspirations embodied in the group of *L'Action française*. Ideology of Fascism represents also a variety of this type. See also the quoted work of Maulinée which shows well its connections with various organic doctrines. The group of the humanitarian, liberal, the positivistic and the somewhat pinkish ideologies of solidarity based also on organic premises is well represented by Fouillée's 'contractual organism' (which reminds one of 'wooden iron') in his quoted work and in his *La propriété sociale et démocratique* (1884) and *Elements socio-logiques de la morale* 1905 by BOURGEOIS L. *La solidarité* 1897; *Essai d'une philosophie de la solidarité* 1902 by BOUGLÉ C. *Le solidarisme* 1907; HAURIOU M. *La science sociale traditionnelle* by GIDE CH., *Essai d'une philosophie de la solidarité* 1907. In America corresponding practical ideologies are inserted into the psycho-organic sociological treatises, and a great many textbooks in sociology and social sciences which preach the doctrine of solidarity with the help of organic—principally psycho-organic—doctrines. Corresponding Syndicalist, Communist and Socialist ideologies of solidarity based also on a variety of the organic doctrines may be found in abundance in the works of K. Marx and the Marxian socialists; in the works of the humanitarian socialists like the Fabian socialists in England and in the journalistic works of authors like H. G. Wells, and this type of ideologies in others in the works of ideologists of revolutionary syndicalism like Lagardelle, Sorel, G. Griffubels, Berth and so on. Finally the ideologies of the contemporary Guild-Socialism are to be mentioned also as a conspicuous example of these applied doctrines based on one of the organic conceptions of a society. All these theories are in their greater part neither scientific nor non-scientific, but extra-scientific ideologies lying outside of science. This statement concerns all such ideologies regardless as to whether they are based on philosophical, bio-organismic or psycho-sociologicistic organicism.

for naturalists to whom it suggested the cell-theory, physical division of labor, and other clear and important ideas. But if it is useful to sociologize biology, it is harmful to biologize sociology. . . Bio-organicism is not only fallacious, but it is dangerous. If I do not see its contributions, I do excellently see fallacies which it supports. The fallacy of a creation of a sociological ontology, of the building up of various metaphysical entities, as real things, or of the permanent use of terms like "social principle," "the soul of a crowd" and other vague concepts of a biological metaphysics, this is, possibly, the worst kind of all metaphysics.³⁷

As a matter of fact, all these analogies and comparisons have added little, if anything, valuable toward an understanding of social phenomena. They have not disclosed any new correlation, any new uniformity, or any new formula of a factual relationship of various elements of a social system. For these reasons we must refuse to follow the bio-organismic school in this respect. *Dropping this part of bio-organicism, we have derived from it a series of statements of the first type mentioned above.* As was stated, these are likely to be valid, but they are not a monopoly of this school. We may say that society represents a kind of system, or a kind of unity, but this is not identical to the unity of an organism.³⁸ We may say that the social group is a reality

³⁷ TARDE, G., "La théorie organique des sociétés," *Annales institut international de sociologie*, Vol IV, pp 238-239. Not without reason also Duprat ironically says of the bio-organismic theories: "*Mentalisez d'abord un organisme, remplacez la cellule purement biologique, qui n'est qu'une abstraction, par une synthèse d'atomes psychiques ou de monades superposez à la vie la conscience, puis socialisez ce que vous venez de mentaliser ainsi, donnez à chaque élément psycho-physiologique une tendance à la vie en commun, à l'association, donnez à l'aggrégat un gouvernement, une sorte de monarchie avec l'âme, dont la sensibilité, l'intelligence, la volonté seront les ministres. Qu'y aura donc gagné la science? Ne résultera-t-il pas une plus grande obscurité encore de ces analogies parfois forcées?*" DUPRAT, *op cit*, pp 59, 68-69.

³⁸ Whether we style the unity of a social system "mechanical," or "organic," or "psychic," it is a matter of terminology and is not important in itself. What is important is how we describe its characteristics and the functional relations which we may discover among various components of a social system, and between the social system and its environment. From this functional standpoint, the only important thing is accuracy in the description of the properties and components of a social system and of their functional relationship and regularities. If this task is performed properly, the adjectives "mechanical," "organismic," and "psychic" add very little to our knowledge of social phenomena. If the task is not performed at all, the adjectives are likely to be useless and misleading. In this case they may give only a purely superficial and terminological knowledge of the phenomena and, owing to a vague meaning of the words, "mechanical,"

of a *sui generis* different from that of its members taken in a state of mutual isolation. But society does not exist independently, and we must not forget the reality of interacting individuals who compose a given social system. We may say that the laws of biology are to be taken into consideration in an interpretation of social phenomena, but this does not mean that a social system is a biological organism. We may agree that a social system is shaped and controlled not entirely by the forces exterior to it, but this is true in regard to any unity, whether it is a "mechanical," an organic, or a social one. We may agree that society is not an artificial system created intentionally by man, but this is true of the solar system, of organisms, and of a great many other "organic," "mechanical" and "psychic" unities which have come into an existence spontaneously. It is true that social institutions are a product of a great many forces and of a long series of trials and errors, and should not be regarded as something purely "incidental," which may be easily changed at once, but this again is true of a great many other non-social unities.

After this consideration of the characteristics of the bio-organic school, let us turn to some of the special theories which directly or indirectly are connected with it and which try to apply its fundamental principles to an interpretation of a series of important social phenomena. Among such theories the most important are those which try to interpret the phenomena of social differentiation, of social adaptation, and of the social struggle for life. Let us glance at them.

"organic" and so on, they are likely to lead to a series of misconceptions not to mention an endless and sterile dispute originated by such a vague meaning of the words. For this reason, I think that a scientific study of the phenomena should concentrate its attention on the above factual analysis and description of a social system, and should pay less attention to the business of word polishing using 'mechanical, organic, 'psycho-social, atomistic,' 'universalistic' and so on. Unfortunately, a great many sociologists have been busy principally with this word polishing. Even in the quite recent sociological studies of O. Spann, Th. Litt, C. Brinkmann, A. Vierkandt, K. Breysig, W. Sauer, and others, too much space has been devoted to the 'word-polishing' and too little to factual analysis of the phenomena and their functional relations. I regard this as a heritage of the philosophical stage of sociology which is to be passed over, and the sooner it is left behind, the better.

6 BIOLOGICAL AND SOCIAL DIFFERENTIATION

H Spencer, Karl Baer, Ernst Haeckel and other biologists indicated that the perfection of an organism varies directly as the degree of its complexity, differentiation, and integration. The greater the differentiation between the organs and the morphological structure of an organism, the greater the division of functions between its organs, causing its parts to be integrated that much more closely with a corresponding loss in their autonomy, the more perfect an organism is the higher place it occupies in the evolutionary "ladder of life," and the more advanced it is in the evolutionary process. Such is the biological criterion of the perfectibility of an organism, given in Spencer's formula of evolution or progress which we find in Baer's and Haeckel's classification of organisms.³⁹ This formula naturally called forth a series of sociological theories whose business was to answer the problem as to whether or not the formula could be applied to societies. If society is a biological organism, the formula should be applicable to it. In this case, the more a society is differentiated and integrated, the more it is centralized, the less freedom its members have and the greater is the division of social labor, the more perfect and progressive and advanced the society should be, and *vice versa*. In a disguised or explicit, a rough or a mild form, such conclusions have really been made, especially in regard to social differentiation and integration as the criteria of social progress. Examples of this are given in H Spencer's works and in those of a 'psycho social' organicist, E. Durkheim, wherein there are many other theories. In their classification of social types and their place in the evolutionary series, in their formula of progress and in their estimation of the role of the social division of labor both of these authors did practically nothing but apply the above criteria of a perfect organism to society. According to them social evolution and progress consisted essentially in an increase of social differentiation and

³⁹ See H. Spencer's formula of evolution or progress in his *First Principles*, 7, 396. N. V. Wey, its application to social phenomena in Spencer's essay about *Progress*, and in his *Principles of Sociology* Vol. I Part II Chaps. X-XII, and *passim*. See HAECKEL, E., *Prinzipien der Allgemeinen Morphologie* 1906, pp. 106 ff.

integration, in an increase of social division of labor, and in a transition from the state of "an indefinite, incoherent heterogeneity to a definite coherent heterogeneity" ⁴⁰

On the part of the "individualists," such inferences naturally called forth a bitter criticism of the organismic theories, as well as of their political and practical conclusions. The best samples of such theories are given in the works of A. Lalande, N. K. Mikhailovsky, L. Winiarsky, G. Palante, G. Tarde, P. Lavroff, ⁴¹ N. Kareef, to mention only a few names.

In the first place, these authors, and among them especially N. K. Mikhailovsky and A. Lalande, have shown that the very terms, "more perfect" and "less perfect" in an application to organisms are not permissible because the terms are the judgments of evaluation and as such, they cannot be used in objective biologic science.

⁴⁰ See indicated chapter in the works of H. Spencer. See DURKHEIM, E., *Les règles de la méthode sociologique*, Paris, 1904, pages devoted to an outline of social morphology and to a classification of social types; see also his *De la division du travail social*, Paris, 1893, *passim*. See about Durkheim's sociology the chapter 'Sociological School' in this book. It is necessary to note, however, that in other parts of Spencer's works, especially in his theory of the militant and industrial type of society, in his criticism of socialism, governmental interference, and 'State-Slavery,' Spencer, like many other social thinkers, radically changes his attitude and practically drops his formula of evolution, as well as his bio-organismic theory. If the formula of evolution and progress is valid, and if society is an organism, the greater social centralization, governmental regulation, and social division of labor, while the lesser is individual autonomy, the more perfect and progressive the society is to be. Such in fact are Spencer's statements developed in the first volume of his *Principles of Sociology*, in his essay about *Progress*, and in his *First Principles*. But when he begins to discuss the above problems, he quite illogically changes his attitude and develops the theories radically contradictory to the basic principles of his bio-organismic theory and his formula of evolution or progress. Similar inconsistencies are found in the theories of Durkheim, too. I do not mention here a series of much more extreme political inferences drawn from the above biological criteria of perfection of organism, and intended to justify political absolutism, centralization, caste-system and so on, on the basis of these criteria. The works of the bio-organicists of the past and of the mentioned contemporary political ideologists (Maurras, Delafosse, P. Cottin, ideologists of the Fascism, of Syndicalism, Socialism and Communism) give various types of similar inferences and "justification." They are rich also with the inconsistencies of their ideologies and their basic principles.

⁴¹ See LALANDE, A., *La dissolution opposée à l'évolution dans les sciences physiques et morales*, Paris, 1899, PALANTE, G., *Combat pour l'individu*, Paris, 1904, *Antinomies entre l'individu et société*, Paris, 1913, WINIARSKY, L., 'Essai d'une nouvelle interprétation de phénomènes sociologiques,' *Revue socialiste*, 1896, MIKHAILOVSKY, N. K., *What is Progress? Darwinism and Social Sciences, Struggle for Individuality*, in his *Works*, Russ., see about Mikhailovsky's, Kareef's and Lavroff's theories in HECKER, J., *Russian Sociology*, pp. 85-204, N. Y., 1916.

Biology may classify and describe the species and the characteristics of the organisms and may show their genealogies but it cannot evaluate them and range them as more and less perfect. Such an evaluation would be nothing but an introduction of anthropomorphism and a subjective concept of perfection into biology. In the second place they indicated that Spencer's explanation of the objective science of evolution (the instability of the homogeneous) is inadequate for it is not the homogeneous which is unstable but on the contrary the heterogeneous. In the third place they indicated that from the standpoint of vitality and immortality the most vital and really immortal organisms are not those which are differentiated and complex but the simplest ones. Contrary to fragile and mortal complex organisms they are ineradicable the most vital imperishable and immortal. This has been indicated by the authors to show the subjectivity of the above criteria of biological perfection. In the fourth place the authors indicated that society is not a biological organism therefore, if the biological formula of perfection were even valid it could not be applied to society. In the fifth place they stressed that the social application of the formula made by Spencer is also wrong. Properly used it has to be applied not to society but to an individual. In this case it would mean that the more differentiated the organs and the functions of an individual are the greater is the division of labor among his organs and the more perfect he is the more many-sided is his personality. Such are the characteristics of the men of genius such are the properties of a really Great Man and such are the indispensable conditions for human happiness and for the progress of human beings. Consequently the more perfect society is that which gives the greatest opportunity for a realization of such an ideal of individualism. Spencer's Durkheim's and other organicists' differentiated and integrated theories of society do not give any chance to develop the individual. If society progresses in its differentiation and integration what happens at the same time to the actual individual—the member of society? Does he experience the same process of development as the type of organic process? Thus asks Mikhailovsky and answers No.

While society becomes more and more differentiated and heterogeneous, the individual—a member of it—proceeds the opposite way of transformation—he becomes more and more onesided, homogeneous, narrowminded and specialised. Such a “progress” of society tends to turn an individual into a “mere digit of the foot” of the society. Understand, then, that in such a progress the individual regresses. If we contemplate only this aspect of the matter, society *is the worst enemy of man* for it strives to transform the individual into a mere organ of itself.

From this standpoint what Spencer and Durkheim regard as social progress (an increase of social differentiation), is to be styled rather social regress.

In the homogeneous mass of primitive society the individuals were heterogeneous. They were complete bearers of their culture, they were many-sided personalities. But with the transition of society from the homogeneous to heterogeneous there began the destruction of this full personality of individuals and its transition from the heterogeneous to homogeneous.⁴²

Thus, if the formula of perfection were applicable, it would have to be applied to an individual but not to a society. Being applied to an individual, it gives quite a different evaluation of an undifferentiated and differentiated society, of the division of labor, of specialization and so on, than does the evaluation given by Spencer, Durkheim, and other bio and psycho sociological *organicists*.

Such, in brief, are these two principal streams of sociological thought originated by or under the influence of the biological formula of the perfection of an organism in its application to the phenomena of social differentiation.

7 CRITICAL REMARKS

The above criticism of the bio organismic school makes unnecessary a detailed criticism of the application of the principle of physiological differentiation to a society. Since we recognized the fallacious character of the principles of the bio organismic

⁴² MIKHAILOVSKY, *Works*, Vol. I, pp. 29 ff., 149 ff., 461 ff., 573 and *passim*, St. Petersburg 1896. WINIARSKY, *op. cit.*, pp. 309–310, 312 ff., see also the mentioned works of Palante, Lalande, and others.

school and the impossibility of identifying society and organisms it follows that the formula of the biological perfection of an organism could not be transported into sociology and applied to a society. If it were applicable to this field at all it had to be applied rather to the individuals than to a group. In this respect Mikhailovsky, Winiarsky and other critics of the theory seem to be right. Besides, as some of them mentioned, the category of a "more perfect" and a "less perfect" organism is a subjective evaluation, but not a statement of a matter of fact. For this reason, these terms and others like "superior and inferior" organisms are illegal within the field of biology itself. In a similar way, there is no possibility of identifying the concepts of "evolution," which is a "colorless" concept in the sense of evaluation, and means only a development of the phenomenon in the course of time (and space) regardless as to whether it tends to a better or to a worse condition. Scientifically illegal is also the concept of "progress," which is a finalist and evaluative term. For this reason Spencer's and similar identifications of these two terms are to be regarded as fallacious. If even social evolution had really consisted in an increase of social differentiation and integration, this would not have meant that such a process is necessarily progress.⁴³ More of the above objections of the anti-organicists indicate other weak points of the discussed analogy. Properly taken, it represents nothing but "an ideology" in which some data of biology are taken to justify some subjective aspirations of the authors. As such they are outside of science and the fewer of their number found in sociology, the better it will be for the science.

⁴³ See SOROKIN, "The Category of 'Ought to Be' in Social Science," *Juridichesky Vestnik* 1917, Russ. Fundamental Problems of Progress. *Novaya Ideya sotsiologii*, Vol. III, Russ. Is Any Normative Science Possible? in SOROKIN, *Crime and Punishment*, 1914, Introduction, Russ.

CHAPTER V

ANTHROPO-RACIAL, SELECTIONIST, AND HEREDITARIST SCHOOL

UNDER this school I am going to discuss the principal theories which give an exclusive importance to the factor of race, heredity and selection in determining human behavior, the social processes, organization, and the historical destiny of a social system. The theories compose a second branch of the biological school of sociology.

I PREDECESSORS

The factors of race, selection, and of heredity were known long ago. In *The Sacred Books of the East* we find many statements which stress their rôle. In the practices of ancient societies, "blood," "race," and "selection" were given an exclusive importance, determining the social status, both of individuals and of groups. The ancient social stratification of castes and classes, of the aristocracy and slaves, of the plebeians and the patricians, and of the noble and the humble, was based principally on "blood" and "race." Accordingly, ancient societies practiced very extensively what is now styled "eugenics." Following are a few of the many examples found in the source literature of these societies.

In the *Sacred Books of India* we find the theory that the different castes were created out of different parts of the body of Brahma, and that they are innately different, consequently, any mixture of blood, or cross marriage, or even any contact of the members of different races is the greatest crime, and the social status of every individual is entirely determined by the "blood" of his parents. There are also a great many purely eugenic prescriptions aimed to keep the purity of the blood, to facilitate the procreation of the best elements in the population, and to check

that of the unhealthy¹ In other words, eugenics was well known and widely practiced in ancient societies

"Twice born men (of the higher castes) who, in their folly, wed wives of the low caste, soon degrade their families and their children to the state of Sudras" "He who weds a Sudra woman becomes an outcast" (with whom any contact becomes impossible) "A Brahmana who takes a Sudra wife to his bed will (after death) sink into hell if he begets a child by her he will lose the rank of a Brahmana" (be automatically excluded from the upper caste) The manes and the gods will not eat the offerings of that man "For him who drinks the moisture of a Sudra's lips who is tainted by her breath, and who begets a son by her, no expiation is prescribed" (Such a sin is unforgivable) Further, it is prescribed that one should avoid taking a wife from the families in which no male children are born, where there are hemorrhoids, phthisis, weakness of digestion, epilepsy, leprosy, when a maiden has red eyes, and so on "In the blameless marriages, blameless children are born to men, in the blameable marriages, blameable offspring One should avoid the blameable marriages"² Such are a few of the many eugenic prescriptions long ago practiced in ancient India

In the Bible also we find many endogamic rules aimed to preserve the purity of blood or race among the Jews

A bastard shall not enter into the assembly of Jehovah, even to the tenth generations shall none of his enter into the assembly of Jehovah³

Ye shall not give your daughters unto their [Gentile] sons nor take their daughters for your sons, or for yourselves⁴

Transgression of this is styled by Ezra as 'mingling of the holy seeds with the people of the land,' and is strongly prohibited⁵

In the *Odyssey* and *Iliad* there are also many places which stress the importance of blood purity

¹ See *Laws of Manu* Chaps I II III IV *Apastamba*, *Prasna* I, II *Gautama* Chap X, *Narada*, XII *The Institutes of Vishnu* II, III, in *The Sacred Books of the East*

² *Laws of Manu*, II, 6-42 See other indicated *Sacred Books of India*

³ *Deuteronomy*, xxiii 2

⁴ *Nehemiah*, xiii 25 also xiii 3 where it is said that they separated from Israel all the mixed multitude

⁵ *Ezra*, ix 2 See also *Deuteronomy*, vii 3 *Exodus*, xxiv 16

Taste ye food and be glad and thereafter we will ask what men ye are, for the blood of your parents is not lost in you but ye are of the line of men that are sceptred kings, the fosterlings of Zeus, for no churl could beget sons like you

Such are the words addressed to the strangers exclusively on the basis of their appearance.⁶ As to the great thinkers of Greece, like Plato and Aristotle, they quite clearly realized the innate inequality of men, and consequently, of races. Plato's guardians are to be selected from men who are naturally suitable for this class, while the members of other classes are composed of the people naturally fit for their lower social standing.⁷ Aristotle stresses the fact that there are inborn slaves and inborn masters.⁸ The same may be said of a great many ancient thinkers. Everywhere the factors of "blood," "race," "heredity" and "selection" were known, were taken into consideration, and were put into practice in various efficient forms.

Since that time up to the nineteenth century, there have been few prominent social thinkers who have not, in some way, touched these problems. "All through the history of political theory we have seen distinctions of race presented as the causes of and sufficient explanations of distinctions in institutions and power."⁹ At the end of the eighteenth, and at the beginning of the nineteenth centuries, a series of philologists, historians, and social thinkers,—Sir William Jones, F. Schlegel, T. Young, J. G. Rhode,

⁶ *Odyssey* IV, 60. Cf. I, 222. *Iliad*, XIV, 126.

⁷ Plato, *The Republic*, tr. by Jowett, pp. 191-198, N. Y. 1874.

⁸ "It is from natural causes that some beings command and others obey for a being who is endowed with a mind capable of reflection and forethought is by nature the superior and governor, whereas he whose excellence is merely corporeal is formed to be a slave, whence it follows that the different state of master and slave is equally advantageous to both." On account of the same natural or innate difference, 'it is as proper for the Greeks to govern the barbarians, as if a barbarian and a slave were by nature one. —Aristotle, *Politics*, tr. by W. Ellis, Dartan Co., Chap. II, Chap. XIII and *passim*.

⁹ DUNNING, W., *A History of Political Theory from Rousseau to Spencer*, p. 311, N. Y., 1920. See a history of these theories in the works SCHALLMAYER, W., *Vererbung und Auslese im Lebenslauf der Völker*, 2nd ed., pp. 142 ff., SIMAR, TH., *Étude critique sur la formation de la doctrine des races au XVII^e siècle et son extension au XIX^e siècle*, Bruxelles, 1922. HANKINS, F. H., *The Racial Basis of Civilization*, Part I, N. Y., 1926. See also the works about Gobineau and Chamberlain, indicated further, which contain a historical review of their predecessors. However, all these works give either a quite fragmentary survey or mix the racial theories with those which emphasize nationality, patriotism, or superiority of a people, regardless of their race.

J V Klaproth A Kuhn, J Grimm, F A Pott, F Müller, and many others, —started the theory of Aryanism, and later on, of Teutonism and Nordicism. Though some of them understood that the Aryans were a linguistic group, nevertheless they often mixed the Aryan people with the Aryan race, and in this way facilitated an appearance of a purely racial interpretation of history. The most famous and the most influential among such theories happened to be the racial theory of Gobineau. His work could be regarded as the corner stone of numerous similar theories set forth after him.¹⁰ Among relatively recent theories which compose the anthropo racial school in sociology, the most important are 1 The racial theories of Gobineau and Chamberlain, 2 The "hereditarist" school of Francis Galton and K Pearson, 3 The selectionist theories of V de Lapouge and Otto Ammon. Besides these there are many other monographs which emphasize the principles set forth by these authors. They will be mentioned further. We shall begin our survey with these three groups of theories. After that we shall briefly mention other works of the school, trying to see which of their generalizations are valid, and which are not.

2 HISTORICO PHILOSOPHICAL BRANCH OF THE SCHOOL

*Arthur de Gobineau*¹¹ (1816-1882) —Count Gobineau's racial interpretation of history is given in the four volumes of his *Essai sur l'inégalité des races humaines* (Paris, 1853, 1855)¹². The essentials of his theory are as follows. For a starting point,

¹⁰ It is rather curious to read the statement of K Pearson that before Darwin there was no possibility of either an organic conception of society, or a proper understanding of the rôle of heredity, race-struggle, and selection. There is no doubt that all these factors were understood well and if one compares many sociological statements of Gobineau with those of Pearson, he will see a great similarity between them, in spite of the fact that Gobineau's work was published before Darwin's and Galton's works.

¹¹ About Gobineau, his life, his theory, and predecessors, see LANGE, M, *Le Comte A de Gobineau*, Strassburg, 1924. HONE, J M, 'Arthur, Count of Gobineau, Race Mystic,' *Contemp Rev*, 1913, pp 94-103. DREYFUS, R., *La vie et les prophéties du Comte de Gobineau*, Paris, 1905. SELLIERE, E., *Le Comte de Gobineau*, Paris, 1903. SCHEMANN, L., *Gobineau, eine Biographie*, 2 vols. Strassburg, 1913-16. HANKINS, *op cit*, Chaps. II, III.

¹² There is an English translation of the first volume of Gobineau's work by A. Collins, *The Inequality of Human Races*, N Y, 1914.

Gobineau takes the problem of the development and decay of societies. What are the causes of such phenomena? What factors determine either an upward movement of society and civilization or their decay? With a great erudition for his time, he takes the existing hypotheses one after another and shows their inadequacy. Having characterized society in a manner 'more or less perfect from the political, and quite complete from the social point of view, as a union of men who live under the direction of similar ideas and who have identical instincts,'¹³ Gobineau shows that neither religious fanaticism, nor corruption and licentiousness, nor luxury leads necessarily to decay, as many authors thought. The Aztec Empire was religiously fanatical and was accustomed even to sacrifice human beings to their gods, yet this did not lead to its decay, but rather facilitated a long historical existence of this society. The upper classes of Greece, Rome, Persia, Venice, Genoa, England, and Russia lived in luxury for many centuries yet this did not lead to their decay. The same may be said of corruption. The earliest ascending stages of ancient Rome, Sparta, and many other societies were far from being virtuous and honest. The early Romans were cruel and pitiless, the Spartans and Phœnicians used to rob, plunder, rape, and lie. They exhibited the greatest corruption, yet this did not hinder these societies from rising and prospering. "It is not in virtue that we find the cause of their vigour at the earliest stages of their history. On the other hand, in the period of decay, many societies exhibit an increase of humanitarianism, softening of mores, a decrease of cruelty, corruption, and brutality, and yet this does not stop their decay. Finally, throughout the history of France and other countries there has been much fluctuation in the amount of corruption, with nothing showing a drift toward decay in the more corrupt periods. For these reasons it is evident that corruption cannot account for decay. Similarly, religious decay is not a sufficient cause to explain it. Persia, Tyre, Carthage and Judea fell down when their religion was very intensive. Even in Greece and Rome, religion, especially among the masses of the population, was quite strong in the period of decay. These and

¹³ GOBINEAU, *Essai sur l'inégalité des races humaines*, Vol. I, pp. 11-12

similar inductions show that "it is impossible to explain a people's ruin through their irreligion" ¹⁴

Neither do the merits of a government influence the historical longevity of societies. Bad governments may be classified as those which are foreign, and those which are imposed by foreign, degenerate, and class-selfish governments. China had, for thousands of years, a foreign (the Mongol) government, and yet, in spite of this fact, China exists and has often shown great social progress. England was conquered by the foreign Normans, and yet this did not ruin England. Furthermore, we know that societies with a degenerated, or class selfish government have continued to exist in spite of these conditions. These, and similar historical inductions testify that national decay cannot be accounted for through the character of the government ¹⁵. In this way Gobineau shows the insufficiency of all these theories. This does not mean that he does not attribute any influence to these factors. He does, but only as to their facilitating the condition brought about. These phenomena may lead to decay only when they are a manifestation of some deeper cause.

After clearing the ground, Gobineau offers his own theory. It consists of the statement that the fundamental factor of the progress or decay of a society is *the racial factor*.

Going from one induction to another I came to the conclusion that ethnical (racial) problems dominate all other problems of history. It is the key to them, and inequality of races is sufficient to explain the entire enchainment of the destinies of peoples ¹⁶.

Understanding by the decay or degeneration of a nation the fact "that the people do not have as much inner valour as they had before," the cause of such a degeneration is that "the people do not have the same blood in their veins any more because through successive cross marriages, its value has been changed, and they have not been able to preserve the race of their founders." Correspondingly, "a people and their civilization dies out when the people's fundamental racial constitution is changed or engulfed among other races to the degree that it ceases to exert the necessary influence." As soon as such conditions are given, the mortal

¹⁴ *Ibid*, Chap II

¹⁵ *Ibid*, Chap III

¹⁶ *Ibid*, p viii.

hour of a society and of its civilization is struck¹⁷ The purity of a race, if the race is talented, is the condition absolutely necessary for preventing the decay of the society and of its civilization Such a people is potentially immortal If they are conquered by an invader, they, like the Chinese under the Mongols, or the Hindus under the Englishmen, can avoid decay, can preserve their civilization, and, sooner or later, will restore their independence On the other hand, racial mixture leads to degeneration even though the society has the most brilliant culture created by its ancestors So it happened with the Greeks and the Romans They could not maintain the purity of their race in the later stages of their history, and therefore, in spite of a wonderful culture they decayed¹⁸

This leads Gobineau to his second proposition about the *inequality of human races* They are unequal *There are the superior and the inferior races* The former are capable of progress, the latter are hopeless Civilization and culture have been created by the superior races exclusively and each type of culture is nothing but a manifestation of racial qualities To corroborate this statement, Gobineau gives a long series of proofs The inequality of races is proved by the fact that up to the present time there are many races which in spite of many thousand years of existence still remain at the most primitive stages of culture They have not been able to create anything valuable or to progress in spite of the different environments in which they have been existing Their creative sterility is due to their racial inferiority rather than to the environmental factors 'The majority of races are forever incapable of being civilized and no environmental agency can fertilize their organic sterility' Such is the statement of the author This naturally leads him to a criticism of various theories which have tried to account for racial differences and differences in cultural development through environmental factors, especially through their geographic environment 'The progress or stagnation of a people does not depend upon geographic conditions," says Gobineau Partisans of this theory used to say that people placed in a favorable geographic environment progress, while the people who stay among unfavorable geographic conditions are

¹⁷ *Ibid.*, pp. 39-40

¹⁸ *Ibid.*, p. 53

stagnant The author states that history does not corroborate such a theory The environment of America was very favorable, and yet the aboriginal races of America, —except three races of South America —could not create any great civilization, but remained in the primitive stages On the other hand, the environment of Egypt, or Athens, or Sparta, or Assyria was far from being favorable It was poor and unfertile until artificial irrigation and other measures were created And yet, in spite of the unfavorable conditions, these races, thanks to their inner genius, modified their natural environment, and created brilliant civilizations The same independence of culture from the environment is shown by the fact that we find the progressive peoples under the most different geographical environments The same is true in regard to stagnant races Finally the absence of any close correlation between the character of the races and that of geographic environment is witnessed by the fact that, in the same environment in one period there exists a brilliant civilization, and in another period, it disappears being superseded by a stagnant and incapable people If geographic conditions were responsible for the progress or stagnation of a people such things could not take place Going in this inductive way and giving one fact after another, Gobineau skilfully shows that "geographical theories" cannot give any satisfactory explanation of the racial and cultural differences of peoples ¹⁹

The next criticism of the author is directed against the theories which try to account for the differences of various peoples by social environment, —that is, through the character of the social and political institutions Gobineau indicates that these theories are wrong also In the first place because institutions and laws themselves are only manifestations of racial traits, not their causes They are created by the people according to their inner qualities, but the people do not create these qualities The institutions do not fall from the heaven as something ready made Neither do they exist before the existence of the peoples with their inner qualities When laws or institutions quite heterogeneous to the racial instincts of a people, are compulsorily introduced by a foreign nation, or by a conqueror or by a radical reformer, they

¹⁹ GOBINEAU, *Essai sur l'inégalité*, Chap VI

usually do not have any success, but remain on paper, representing a mere decoration. Sometimes, when a race cannot resist such innovations, it dies, like many primitive people who have been unable to adapt themselves to such a heterogeneous culture. Even a pure imitation of a foreign culture or institutions is possible only when, in the veins of an imitating race, there is a part of the blood of the people whom they imitate. The negroes of America can imitate some superficial cultural traits of the white race only because in their veins there is already a considerable part of the white blood. The author gives again a long series of facts of this kind, and concludes that the discussed theories cannot give any satisfactory explanation of the differences brought about in various peoples through the social environment.²⁰ From this viewpoint he analyzes in a detailed form the role of religion and especially the role of Christianity, in order to show that even this environmental factor cannot explain the differences of various peoples. Though Christianity is accepted by different peoples, teaching them all the same ideas, nevertheless it is forced to leave the institutions of these peoples untouched in their essence. The Eskimo Christian remains Eskimo, the Chinese Christian remains Chinese, the South American native remains what he was, and all these different Christians remain different from one another in spite of the identity of their religion. This shows that unless religion is a direct manifestation of racial instincts (in which case it cannot be universal and cosmopolitan) it cannot change the racial qualities and explain the differences of the races.²¹

After this critical part, Gobineau outlines his theory of the origin inequality, and social role of the racial factor. The three volumes of his work are practically devoted to the development of this theory. Its essence is as follows. Besides the above arguments, the fact of racial inequality is corroborated by, and is partially due to, the probable heterogeneous origin of different races. In this way, he was one of the first authors who set forth the theory of the heterogeneous origin of different races,—the theory stressed later on by Gumpłowicz and many anthropologists. Since different races sprang from different sources, it is natural that they are, and must be, different, especially in the early stages

²⁰ *Ibid* Chap V

²¹ *Ibid*, Chap VII

of their history, when they were purer than they now are. In spite of a long course of history, and a great mixture of blood, even now the races are still different anatomically, physiologically, and psychologically. Such differences are permanent and could not be obliterated by any environmental factors. Only cross-marriage or mixture of blood may change racial characteristics.

At the beginning of human history there existed three pure, principal races—the white, the yellow, and the black. All other racial varieties have been nothing but a mixture of these fundamental races. Of them the most talented and creative was the white race, especially its Aryan branch. In its pure form this race has performed real miracles. It has been practically the creator of all the ten principal civilizations known in the history of mankind. Six of them, namely—the Hindu, the Egyptian, the Assyrian, the Greek, the Roman and the Teuton civilizations—were created by the Aryans who represent the highest branch of the white race. The remaining four civilizations,—the Chinese, Mexican, Peruvian and Maya, were founded and created by other branches of the white race, mixed with outside races. This white race expanded and conquered other races, but, at the same time amalgamated with them. From this amalgamation came different racial groups and corresponding civilizations, but the more the amalgamation progressed the more the white race lost its precious qualities, and the more its various branches (like the Greek or the Roman) degenerated. At the time of Jesus Christ the first and the most brilliant part of the history of mankind had been completed. At that time the amalgamation of races had already reached a considerable proportion. Since this period, and up to the present time, it has been progressing, with some fluctuations. The result of such race blending is a tendency to decay, which has been shown in the history of the last few centuries. It expresses itself in many forms, and one of these is the progress of egalitarian ideas, democratic movements, and the blending of cultures, which, however, does not show anything of that brightness and genius which stamped the previous great civilizations created by relatively pure races. The future prospects drawn by Gobineau are naturally not very hopeful,—blood

mixture having already progressed so far that the process can scarcely be stopped, it is likely to progress more and more

After the age of the gods, when the Aryan race was absolutely pure, and the age of heroes when race blending was slight in form and number, it began, during the age of nobles to slowly progress. After this age, race-mixture advanced rapidly towards a great confusion of all racial elements and through numerous inter racial marriages

The result of such a progress will be a greater and greater similarity of human beings on the one hand and on the other an increasing mediocrity of men's physical constitutions, of their beauty, and of their mind. Here we have the real triumph of mediocrity, since in this sorrowful inheritance (of race amalgamation) everybody must participate in equal proportion and there is no reason to expect that one would have a better fate than another. Like the Polynesians, all men shall be similar to one another,—in their stature, in their traits, and in their habits

Human herds no longer nations weighed down by a mournful somnolence, will henceforth be benumbed in their nullity like buffaloes ruminating in the stagnant meres of the Pontine marshes

This means the death of society and the end of the whole human civilization²²

Such is the scheme and skeleton of the work of Gobineau. Written brilliantly, with the charm of an excellent stylist, the fascination of an original thinker, and marked by clearness and logicity of ideas, and finally, by unusual erudition, the book made, and makes up to this time, a strong impression. It gave a great impetus to many other racial theories, which will be mentioned later. Postponing my criticism of Gobineau's theory here, I shall mention only that which is an appreciation of the theory. The chapters of the book devoted to the criticism of different environmental theories are still valid in their essential objections to the environmentalism, and are quite fresh even at the present moment.

Houston Stewart Chamberlain (1855-1926) —Among the works which are similar to that of Gobineau in their method and character, a conspicuous place belongs to the work of H. S. Cham-

²² *Ibid* Vol IV, pp 318-359 Vol I Chaps X, XI, XVI

berlain *The Foundations of the Nineteenth Century*²³ The son of Admiral William Charles Chamberlain, born in 1855, the author received an entirely foreign (principally German) education He travelled a great deal, and published several works such as *Notes sur Lohengrin* and *Das Drama Richard Wagners* However, his fame has been due to *The Foundations of the Nineteenth Century* In this historico philosophical work, Chamberlain puts and answers the problem What are the foundations or the sources of the civilization of the nineteenth century? The essence of this answer is as follows Contemporary civilization is composed of four principal sources namely, the contributions of the Greek civilization, of the Roman, of the Jewish, and of the Teuton From the Greeks we received poetry, art and philosophy, from the Romans, law, statecraft order, the idea of citizenship, and the sanctity of the family and of property, while the Jews gave us the elements of Judaism, and indirectly of Christianity, besides other good and bad legacies and influences which the Jews have exerted since the moment of their entrance into Western history On the basis of these legacies the Teutons,—the term by which Chamberlain understands the Germans, the Celts, the Slavs and all the races of northern Europe from which the people of modern Europe and of the United States of America have sprung—have shaped and created the Western civilization of the nineteenth century²⁴ Each of these fundamental elements has been the work of the racial genius of the above groups Their specific talents and contributions have been nothing but a manifestation of their racial qualities This leads Chamberlain to his theory of the racial factor

The human races are, in reality, as different from one another in character qualities and above all in the degree of their individual capacities as greyhound bulldog poodle and Newfoundland dog Has not every genuine race its glorious incomparable physiognomy? How could Hellenic art have arisen without Hellenes? Nothing

²³ It appeared in German under the title *Grundlagen des Neunzehnten Jahrhunderts* in 1899 I use its English translation by John Lees London John Lane Co., 1911 About Chamberlain see SELLIERE E H S Chamberlain de plus récent philosophe du pangermanisme mystique Paris 1917 HANKINS, *op cit*, pp 64 ff

²⁴ CHAMBERLAIN *op cit*, Vol. I, pp 1-13 and *passim*

is so convincing as the consciousness of the possession of Race. The man who belongs to a distinct, pure race, never loses the sense of it. The guardian angel of his lineage is ever at his side, supporting him where he loses his foothold, warning him where he is in danger of going astray, compelling obedience, and forcing him to undertakings which, deeming them impossible he would never have dared to attempt. Race lifts a man above himself: it endows him with extraordinary—I might almost say supernatural—powers. It is a fact of direct experience that the quality of the race is of vital importance.²⁵

The author proceeds further to show that the various races are different, that there are the superior and the inferior races, and that their difference is due not to environment, but is innate. The most superior race is the white, — particularly the Aryan race, to which in the past belonged the Greeks and the Romans, and at the present, the Teutons in the above indicated sense of the word. In these respects Chamberlain's theory is similar to that of Gobineau. Only in regard to the pure races does he differ from the French author. As we know, Gobineau regarded any mixture of the blood of a noble, pure race as its contamination. According to Chamberlain,

This supposition rests upon total ignorance of the physiological importance of what we have to understand by "race." A noble race does not fall from Heaven: it becomes noble gradually, and this gradual process can begin anew at any moment.²⁶

Not only the Jewish, but the Aryan, and the Teutonic races, all emerged at the beginning from a fortunate mixture of different races. Such fortunate mixtures may take place in the future also. Therefore this future need not be necessarily as pessimistic as it was depicted by Gobineau.²⁷ The principal conditions necessary to create a noble race through mixture are as follows. First, "the presence of excellent racial material. Where there is nothing, the king has no right." Second, an inbreeding.

Such races as the Greeks, the Romans, the Franks, the Swabians, the Italians, the Spaniards in the period of their splendour, the

* *Ibid.*, Vol I, pp 261-262, 269-271 *et seq.* See also p 317 *et seq.*

* *Ibid.*, Vol I, p 263

²⁷ *Ibid.*, p 263

Moors, the English, and such abnormal phenomena as the Aryan Indians and the Jews,—only spring from continued inbreeding. They arise and they pass away before our eyes. Inbreeding means the producing of descendants in the circle of the related tribesmen, with the avoidance of all foreign mixture of blood.

Third, "artificial selection" that is, the elimination or hindering of the procreation of the inferior part of a race and the facilitation of that of the superior individuals. Fourth, the crossing of blood with other homogeneous racial groups. Fifth, "only quite definite limited mixture of blood contributes towards the ennoblement of a race or, it may be the origin of a new one"²⁸. All known powerful and noble races sprang up under the operation of these five conditions.

Having given these principles Chamberlain proceeds to his detailed analysis of the race and the contributions of the Greeks and the Romans. Beginning with the period of "The Chaos" at the beginning of the Middle Ages, he traces the origin and appearance of the Teutonic race and the origin and entering of the Jews into Western history. On the one hand, the author admires the Jews for their preservation of racial purity, seeing in it the source of the increasing power of the Jews. On the other hand like Gobineau and many others, he stresses their pernicious influence on our civilization. They remain always 'the aliens among all peoples'. With the help of the princes and the nobles who need their money, the Jews have always been the cruel exploiters and merciless destroyers of all nations.

The Indo-European moved by ideal motives, opened the gates in friendship the Jew rushed in like an enemy, stormed all positions and planted the flag of his, to us alien nature — I will not say on the ruins, but on the breaches of our genuine individuality. Wherever the Jews are admitted to power, they abuse it²⁹.

Owing to the humanitarianism, generosity, and disregard of the racial problem on the part of the Indo Europeans for the last centuries the influence of the Jews has been increasing and our time may be styled "*The Jewish Age*"

²⁸ *Ibid*, pp 276-289

²⁹ *Ibid*, pp 330, 345, and the whole of Chap V

The Teutons representing a fortunate mixture of different Arvan races are the real creators of the civilization of the nineteenth century Tall fair long headed they have been the bearers of courageous energetic inventive minds and especially also of loyalty and freedom Freedom and loyalty are the two roots of the Germanic nature ³⁰ Having assimilated the heritage of the past civilizations they have created the new splendid beautiful and great civilization of ours ³¹ Luther Immanuel Kant Newton Charlemagne Shakespeare Dante Nelson Montesquieu R Wagner and practically all the great leaders of the Middle Ages and of the new period have been Teutons In the previous centuries the Teutons struggled and mastered all the other half breeds and the Jews At the present moment the struggle between the Teutons and the Jews and other non Teutons is being continued

No arguing about humanity can alter the fact of the struggle Where the struggle is not waged with cannon balls it goes on silently in the heart of society by marriages by the annihilation of distances which further intercourse by the varying powers of resistance in the different types of mankind by the shifting of wealth by the birth of new influences and the disappearance of others and by many other motive powers But this struggle silent though it be is above all others a struggle for life and death ³²

Such is in essence this racial philosophy of history His book touches many other important problems and gives many interesting theories and interpretations but we shall pass them by because they do not have a direct relation to the racial theory in sociology

3 THE RACIAL ANTHROPOMETRICAL BRANCH OF THE SCHOOL

Before mentioning other works which have stressed the racial factor principally on the basis of historical evidences let us turn to that branch of the school which has emphasized the importance of the race factor principally on the basis of the data of anthropometry The leading roles in this field have been played by the works of a French anthropologist and biologist G Vasher de Lapouge and by a German anthropologist Otto Ammon not to

³⁰ *Ibid* p 574

³¹ *Ibid* pp 321 328 and Chap VI

³² *Ibid* p 578

mention other names. Their works have given a great impetus to the racial school which tries to base its contentions on a new foundation that is on the data of anthropometry and biology. Through their works the conception of the superior and the inferior races has become somewhat more definite. Let us briefly outline the essentials of their works.

*G. V. de Lapouge*³³—Of his numerous researches the most important are summed up in his three books: the conclusions of which are now given *Les selections sociales* (Paris 1896) *L'Aryen son rôle social* (Paris 1899) and *Race et milieu social* (Paris 1909). In spite of the one-sidedness of these works they belong to the type of books which are stamped by originality, independence of opinion and erudition. From the sociological standpoint the more interesting is the first book. It is opened with a discussion of Darwinism in social sciences. In regard to race the author's starting point is that any population or any individual has in its veins the blood of numerous and various races. The number of the ancestors of every man if they are traced back to the time of Jesus Christ is no less than 18 014 583 333 333 333. If we go further back the number rapidly increases to an unthinkable figure. This means that there is no pure race in the absolute sense of the word³⁴. This however does not mean that there do not exist different races in a relative sense of the word. Many crossings are purely incidental and cannot alter seriously either the purity of a race or its dominant characteristics. This is ascertained by the existence of races with different bodily, psychical and physiological characteristics³⁵. The population of Europe consists of three principal races: the word 'race' being taken in its zoological sense. The first race is *Homo Europæus* or the Aryan race. Its characteristics are a tall stature (about 1m 70) conspicuously dolichocephalic index 76 and below and blondness. Corresponding psychological traits are as follows:

A dolichocephal has great wishes and incessantly works to satisfy

³³ Concerning his works see KOVALEVSKY M. *Contemporary Sociologists*, Chap. VIII. FLANKIN'S op. cit. Chap. I., and works indicated further.

³⁴ *Les selections sociales* pp. 3-4.

³⁵ *Ibid.* pp. 4-8.

them. He is capable rather of gaining than of preserving wealth. Being audacious in his temperament, he dares everything and through this audacity achieves an incomparable success. He fights for the sake of fighting without a back-thought of profit. The whole earth is his own and the whole planet is his country. His intelligence may vary from dullness to genius. There is nothing that he does not dare to think or desire, and desire for him means to realize it at once. Progress is his most intense need. In religion he is a Protestant. In politics he demands from the State only the respect of his activity, and tends rather to rise himself, than to oppress others.³⁶

The second principal race is the *Homo Alpinus*. His characteristics include a stature of from 1m 60 to 1m 65 and a cephalic index of 85 and above. Pigmentation is brown or even lighter. This is a typical man of the brachycephalic race.

He is frugal, laborious, remarkably prudent, and does not leave anything to chance. Not lacking in courage, yet he does not have a militant proclivity. He loves land and especially his native place. Being rarely a nullity, at the same time he rarely rises to a level of talent. His mental vistas are limited and he patiently works to realize his moderate purposes. He is a man of tradition and common sense. He does not like progress. He adores uniformity. In religion he prefers to be a Roman Catholic, in politics he craves for State protection and interference, and for equality and levelling. He sees excellently his personal interests, and partly those of his family but the interests of the whole country are beyond his mental perspective.³⁷

The third race is *Homo Contractus* or *Mediterranean*. He has a low stature, dark color, and a cephalic index of about 78. He represents something midway between the two above races. According to his characteristics he must be ranked below even *Homo Alpinus*.³⁸

Such are the principal racial types of the European population, the most important racial characteristics of which are the cephalic index and pigmentation. The combination of these bodily traits is connected with corresponding psychical and mental characteristics. This correlation is so close that the author says

The strength of a character depends upon the length of cranium and brain. When the cranium is less than 0.19 the race lacks energy

³⁶ *Ibid.* pp 13-14.

³⁷ *Ibid.*, pp 17-18

³⁸ *Ibid.*, pp 23-28

Such is the case with the brachycephalic race, which is characterized by insufficiency of individuality and initiative. Intellectual power, on the contrary, seems to be correlated with the breadth of the anterior part of the brain. Certain dolichocephals whose cephalic index is too low seem to be incapable of rising above barbarism. I do not know any superior people whose cephalic index would be below 74. An interval of a dozen units separates this limit of sufficient intelligence and maximal energy from that where the energy is insufficient.³⁹

Having given these racial characteristics, Lapouge proceeds to show that practically all important achievements of culture have been made by the *Homo Europaeus*, the Nordic, or the Aryan race. They have been the leaders in every creative activity, and otherwise the dominant race. Within the same society the upper classes are composed predominantly of this race while the lower classes are composed of the other two races or their mixture. There are racial differences, not only among various societies, but among various social classes of the same society, too. Correspondingly the progress or regress of a society is determined principally by changes in the racial composition of its population. If the Nordic racial elements increase among it, society progresses, but if, on the contrary, its proportion decreases—if in other words, the cephalic index of the population becomes less and less dolichocephalic this will result in a social regress and decay of the society.⁴⁰ These generalizations are corroborated by various and different anthropometrical data. They are intended to show that the cephalic index of the ancient aristocracy (and partly even of the contemporary one) has been lower (more dolichocephalic) than that of the lower social classes, that a more progressive city population has a more dolichocephalic index than that of a more backward country population, that in Greece and in Rome, parallel to the development of decay, the cephalic index of the population had been rising, that among contemporary societies, the most progressive have been those in which, as in England and the United States of America, the population has been rich in the Nordic elements, that in France and in other countries during the last few centuries, a decrease of

³⁹ *Ibid.*, pp. 78-79

⁴⁰ *Ibid.*, pp. 65 subseq.

the Nordic elements in the population has been accompanied by the process of decay, and so on (See the *Social selections* and *L'Aryen*, *passim*) On the basis of these data of anthropometry, Lapouge comes to conclusions similar to those of Gobineau about the role of the racial factor in the evolution of a country and a civilization

Having formulated these conclusions, the author asked how these changes in the racial composition of a population could have happened What factors are responsible for them? Why is it that a dolichocephalic race could not and cannot keep its own proportion within many societies? The answer to these questions leads us to the second, and from my point of view, to the more valuable part of the theory of Lapouge,—that is, his theory of social selection

Changes in the population are possible either through the direct influence of environmental agencies which may modify, step by step the bodily and mental traits of a population, or through selection—that is, through a progressive decrease of certain racial elements and a progressive multiplication of other racial (hereditary) types in the population The first way does not lead directly to a change of the racial (hereditary) type but it may lead to it in a long period of time The other way may change the racial (hereditary) composition of the population very efficiently and in a relatively short period of time In order to show this, the author analyzes the principal environmental agencies He takes education and tries to show that its efficiency in this respect is very limited It cannot change the race and the inherited traits of the population It cannot make out of an innately stupid man, a talented one, out of an inborn idiot, an averagely intelligent man, or out of mediocrity, a genius The best that education can do is to raise the mental level of mediocrity a little But even in this respect its possibilities are limited The importance of heredity is shown in the fact that education does not diminish the differences between individuals, but rather increases them If a mediocre talent gains something by education, hereditary talent gains still more, so that after the education, the difference between the former and the latter increases, but does not decrease Education, furthermore, is incapable of changing the tempera-

ment the character, and the moral traits of people. Thus is witnessed by the fact that, in spite of a great increase of schools and educational institutions, the number of crimes has not diminished, but has rather increased. The cranial capacity also has not increased, but rather decreased during the last few decades. Finally the results of education are not inherited, therefore, its fruits cannot be transmitted and fixed into posterity. These considerations must show that the educational factor is very limited in its efficiency to transform the race of a people.

More efficient is the influence of climate, as an environmental agency. Important also are the modifying agencies of food, alcohol, intermarriage, and some other environmental agencies in the alteration of the racial type of the population. Taken independently of selection, however, they would require hundreds of years to perform a noticeable change in the racial type of a people. For this reason their direct efficiency is limited. If it is somewhat greater, this is due to the indirect influence exerted through the channels of selection.⁴¹ The most important, rapid and efficient way of changing the racial composition of a population is not by the direct influence of environment, but by a selection which will lead to a survival and multiplication of one racial type and to the extermination of another type. Through selection the proportions of different racial types in a population may be changed greatly, and within relatively a few generations. If we imagine two different families, one producing four surviving children in each generation and the other only three offspring,—then in the course of about three hundred years the total population will be 93 per cent the offspring of the first family, and 7 per cent that of the second.⁴² This shows how rapidly the factor of selection works, and how efficient it is in changing the racial composition of a population. The degeneration or improvement of society has been due not so much to the direct influence of environment as to the factor of selection.

This leads to Lapouge's analysis of selection. He accepts Darwin's theory of natural selection and the evolution of organisms through the play of this factor, or through the elimination of the unfit and survival of the fittest. Among human beings,

⁴¹ *Les sélections sociales*, Chaps. IV, V, VI.

⁴² *Ibid.*, pp. 61 et seq., 350.

however, he believes natural selection gives more and more place to social selection, natural environment being gradually superseded by social *milieu*. Therefore, natural selection is transformed into a social one, that is, the selection which goes on under the influence not so much of natural, as of social environment.⁴³ In the subsequent parts of his book, Lapouge analyzes the principal forms and effects of social selection within the past and especially in the present societies. As natural selection may be progressive and regressive, so may social selection lead to a degeneration or to a betterment of the racial (hereditary) composition of the population. Its dominant effects, however, are negative within present societies.

The first fundamental form of social selection is *military*, or the selection caused by war. Contrary to general opinion, Lapouge contends that wars do not decrease, but increase with the progress of civilization. Man is more warlike than any animal and contemporary man is more warlike than prehistoric man. With the exception of primitive times, war carries away the best racial elements of the population,—the healthiest, the strongest, the bravest, and the most audacious dolichocephals,—in much greater proportion than the inferior and the brachycephalic population. It facilitates the elimination of the belligerent Aryans and the survival of the Alpine or the Mediterranean races. In this military way the Aryans of ancient Greece and Rome, and the Nordic nobility of Gallia and of the Middle Ages perished to a great extent. As the Nordics are more belligerent and independent, they have been the greatest sufferers from war. Hence, if the fertility of these racial elements does not compensate for the losses of war, or should their propagation be retarded in comparison with that of other races, war leads to degeneration, that is, an extermination of the Aryan race in a society.⁴⁴

The second form of social selection is *political*, performed under the influence of political factors and political struggles. Its results are also negative. Through revolution and civil strife, this selection facilitates an extermination of the best part of the population among both the aristocracy and the people. Again, the Nordics, who usually happen to be in both struggling factions,

⁴³ *Ibid* Chap VI

⁴⁴ *Ibid*, pp 207 et seq

perish in a greater proportion than do the other racial groups. To this factor is greatly due the extermination of the Aryan aristocracy in ancient Greece and Rome, in the French Revolution, and in other similar cases. Further, in the past but more especially in the present, political conditions have facilitated the social promotion of nullities servile people, machinators, and politicians, while they have suppressed, especially in democracies the social promotion of independent and creative minds. Through the political strife of parties the chances of survival and procreation of such people are handicapped. Machinators, demagogues politicians who rarely belong to the best and creative type of men greatly profit through this form of selection, while the best people, keeping themselves out of politics, rather suffer from such conditions.⁴⁵

The third form of social selection is *religious*, which is due to the religious conditions. Religion leads directly to selection through the institution of celibacy required by several religions, and indirectly, through various religious institutions. In many religions the priests and the clergy must be celibate. This means that they cannot leave, at least legally any posterity. As has been proved many times church officials recruited from various social strata are usually superior physically morally, and mentally to other people. Celibacy of this superior group prevents it from leaving superior posterity. In this way celibacy impoverishes the fund of the superior racial elements of a population and facilitates its racial degeneration. From this standpoint, Mohammedanism with its polygamy is more eugenic than Christianity, especially the Roman Catholic denomination. Religion leads to the same disgenic result through religious persecution, wars, and inquisition, and through the prohibition of sexual freedom by favoring asceticism, its prohibition of marriages with those who have a different religion, and so on.⁴⁶

The fourth form of social selection is *moral*, due to moral obligations and rules of conduct. It is closely connected with religious selection. It manifests itself in such phenomena as the repression and chastisement of sexual liberty as the demands of decency, and as opposition to bodily nakedness resulting in our

* *Ibid.*, pp. 243 et seq.

* *Ibid.* pp. 263 et seq.

covering ourselves with unhygienic clothes which hinder free breathing, bar the beneficial influence of the sun and fresh air, and facilitate tuberculosis and other sicknesses. In addition through philanthropy and its propaganda, moral rules facilitate the survival of the weak and the procreation of the inferior. In such ways morals contribute a great deal to negative social selection.⁴⁷

The next form of social selection is *juridical*, being performed by law and law machinery. It operates through criminal law and the punishment of offenders by execution, imprisonment, banishment, ostracizing, and torture. Many of these offenders are political and this form of selection especially, often has negative effects, because its victims many times include people of superior character. Juridical selection operates further through civil law and its machinery, forbidding consanguineous marriages between relatives, and punishing bigamy and polygamy. Civil law prevents talented people from keeping purity of blood, and procreating more intensively, while it facilitates such disgenic institutions as prostitution.⁴⁸

The sixth form of social selection is *economic* due to the struggle for material necessities. For the best racial elements its results are disastrous also because the superior people do not care much about money making and, as a result, the successful money makers are rarely superior men. Enrichment is often the result of luck or dishonesty, or cupidity or machinations and manipulations. Within present societies the 'machinators,' especially the Jews, concentrate wealth. Through wealth they rise to the top of the social pyramid, and procreate themselves, while the mentally and morally superior individuals must limit their posterity to meet their own conditions. Many of them do not marry at all. In this way these precious racial elements are lost and the racial fund of a society is impoverished. Marriages dictated by economic reasons lead to the same result when a racially superior, but poor individual takes a rich but racially inferior man or woman as his mate. In this and in similar ways the present "plutocratic" regime facilitates the procreation of the inferior and hinders that of the superior people. A regime based on wealth is the worst enemy of racial progress.⁴⁹

⁴⁷ *Ibid.* Chap. XI

⁴⁸ *Ibid.*, Chap. XII

⁴⁹ *Ibid.*, Chap. XIII

The seventh form of social selection is *occupational*, called forth by occupational differentiation of the population. Its effects are again negative. Vital statistics show that the more qualified occupational groups have a lower fecundity than the semi skilled and the unskilled groups. As the people engaged in the qualified occupations are more dolichocephalic than the people in unskilled occupations, this means that occupational selection facilitates the procreation of brachycephals and handicaps that of dolichocephals. It leads to the same racial degeneration to which lead other forms of social selection.⁵⁰

The next form of social selection is performed by *urban and rural differentiation*. Growth of the cities and industrialization calls forth a permanent migration of the country population to the cities. The rural migrants are dominantly more dolichocephalic than those who remain in the country. The migrants as a rule, are more energetic, enterprising, talented and superior, than those who remain in the country. Cities permanently drain the best elements of the country population and having drawn them from the country, they make them relatively sterile either through city vice and sickness or through their own voluntary restriction of fertility for the sake of social promotion. In this way urban selection diminishes the chances for the procreation of a relatively superior and more dolichocephalic people.

Such, according to Lapouge are the principal forms of social selections and their factors. I have only outlined schematically, what Lapouge brilliantly develops on many pages full of statistical, historical, and psychological data. The result of all these selections is negative. They lead to an extermination of the Aryan elements within present societies, followed by their racial degeneration and ultimate decay. Excepting in Anglo Saxon countries, where the Aryans are still in abundance, this race is already in the minority. Even among the upper classes they have been supplanted by a new brachycephalic aristocracy, representing the posterity of saloon keepers, money makers and other racially inferior elements who promoted themselves owing to negative social selections. The triumph of mediocrity, demagoguery, machinations, and the inability to create new, real values and to achieve

⁵⁰ *Ibid.*, Chap. XIII, pp. 355 *et seq.*

a real progress from the characteristics of our time and our culture. These are nothing but the symptoms of the beginning decay of Western civilization. Only in the Anglo Saxon countries is the situation any better, and even there the condition is temporary, because, under present social conditions, the Aryans are doomed to extermination.

The above leads the author to his criticism of the Utopia of progress, and to the formulation of his law of the quicker destruction of the more perfect racial elements⁵¹. The concept of progress is a mere Utopia. Astronomy, paleontology, biology, and history testify against it. Astronomy tells us that the sun is becoming colder and that when it becomes cold life on the earth, and consequently, the continuation of human history, will become impossible. Paleontology witnesses that in the course of the evolution of life many perfect species have perished being unable to adapt themselves to the environment which much more primitive species have survived. Biology proves that selection may go on in regressive, as well as in progressive directions. History testifies that many a brilliant civilization has perished and many peoples, after a period of progress have decayed⁵². All these undeniable facts show the chimerical character of the belief in progress, or of a perpetual betterment of mankind in the course of time. They also indicate that the more perfect organisms are liable to perish more easily than the less perfect or more primitive species. The social selection and elimination of the superior racial elements in a population in favor of the inferior races, is only a particular form of this general phenomenon of the easier destruction of the more perfect forms in favor of the less perfect. The Aryan race has created almost all that is valuable in culture and civilization. Almost the whole of human progress is due to it, but these achievements and this progress have cost very much. They are now being paid for and the price demanded is the destruction of this creative race itself. Now this process is approaching its end. The Aryan race has been rapidly disappearing and at the present moment it composes only a small fraction of the whole human population. Through some special eugenic measures namely, the creation of a natural aristocracy according to

⁵¹ *Ibid.*, Chap. XV

⁵² *Ibid.*, pp. 443 *et seq.*

the innate qualities of individuals, and through its inbreeding, its greater procreation and organization in a new dominant racial caste, it would be possible to slow the process of racial degeneration, but there is not much hope of realizing these measures, and, even at best, they would only serve to postpone, but not to avert, the elimination of the Aryans.

Such is the essence of the principal work of Lapouge. In his *L'Aryen* and *Le race et milieu social*, as well as in his numerous researches, he did not add anything substantially new to the principles given in *Les selections sociales*. In *L'Aryen*, Lapouge skillfully summed up the principal "laws" elaborated by himself and his collaborators. These laws will be given later on, after the characteristics of the theories of Otto Ammon and George Hansen have been disposed of.

Otto Ammon—The second founder of the "Anthropo sociology" is a prominent German anthropologist, Otto Ammon. His works began to appear almost at the same time as those of Lapouge. At the beginning they worked independent of each other, but somewhat later they came across the works of each other, and, after that, they began to cooperate in a popularization of their similar theories. Ammon began his scientific work with an anthropometric measurement of the recruits of the Grand Duchy of Baden in 1886.⁶³ These measurements have shown that the percentage of dolichocephals among the recruits of the cities (Heidelberg, Karlsruhe, Mannheim and so on) was much higher than among the recruits of the country, while the per cent of the brachycephals was in reverse proportion. This result was quite unexpected for Ammon himself, and he did not know at that moment whether it was due to the direct influence of the city environment or to a special selection of the city population. As a naturalist he thought he should test both possible theories, and he undertook such a test. He began by making further very careful anthropometric measurements of the students of the gymnasiums (high schools) and the recruits of Karlsruhe and Fri-

⁶³ Its results were published by Ammon in his *Anthropologische Untersuchungen der Wehrpflichtigen in Baden*, Hamburg, Richter, 1890. A short résumé of the evolution of the theories of Ammon in connection with the works of Lapouge is given by Ammon in his paper, "Histoire d'une idée. L'Anthroposociologie," in *Revue internationale de sociologie*, Vol. VI 1898 pp. 145-181.

burg, with strong separation of the people measured according to their, and their parents', social position and according to their country or city origin. The results showed that the per cent of dolichocephals was again higher in the city population than in that of the country, that it was higher among those who migrated from the country than among those who remained sedentary and that the upper social classes were more dolichocephalic than the lower ones.⁵⁴ These facts, being unaccountable through direct influence of the city environment, could be explained only through admission of selection. Ammon's explanation consists in the admission that the dolichocephals dominate among those who migrate from the country to the city. In other words, dolichocephals are more migratory than the brachycephals. This accounts for the predominance of the dolichocephalic type in city population composed of such dolichocephalic migrants as compared with the country population. This form of selection is facilitated by an additional one which goes on in the cities, namely, by the fact that the brachycephals die out in the cities more rapidly than the dolichocephals, and that the dolichocephals climb up the social ladder in the cities more successfully than the brachycephals. The results obtained by these measurements may be accounted for by the hypothesis of selection. In this inductive way Ammon came to conclusions similar to those of Lapouge and George Hansen.⁵⁵

In his *Die drei Bevölkerungsstufen* (first edition in 1889) George Hansen tried to show that the population of cities could not keep its biological balance if there were not a permanent influx of the country migrants to them. Their population would otherwise die out within two or three generations. Since this is not the case the cause must be the migration of the country people to the cities. The cities are incessantly draining the surplus and the best elements of the country population. The country migrants, having come to the city, usually enter the middle social strata, part of them climb up further. Having climbed, they become sterile, and die out, another part then dropping into the class of the proletariat. Thus, contrary to K Marx's theory

⁵⁴ The detailed results of this study were published by Ammon in his book, *Die Naturische Auslese beim Menschen*, Jena, 1893, G Fischer.

⁵⁵ See AMMON, *Histoire d'une idee*, pp 152-157.

there are not three, but only two principal social classes the class of the agriculturists (farmers, landowners, peasants) and the class of the city proletariat, for the city middle and upper classes represent only a temporary transitional stage, of passage of the country migrants from the class of the agriculturists to that of the proletariat. Eventually the city drains all the valuable elements of the country population, and then a decay of the corresponding society becomes imminent.

Hansen's and Lapouge's theories helped Ammon to understand the general significance of the data disclosed by the above observations. Such was the way of Ammon's coming to conclusions similar to those of Lapouge and, later on, of his becoming one of the most prominent leaders of this school. Although agreeing substantially with the principles of Lapouge's theory, Ammon, nevertheless, stressed some points of difference. Thus was due in the first place to a greater accuracy and cautiousness of Ammon than of Lapouge. Contrary to Lapouge he indicated that even if dominance of the dolichocephals in the city population and in the upper classes is certain the same cannot be said about pigmentation. Dolichocephals need not necessarily be blond in order to make a success in the city, and the same may be said of the dolichocephalic migrants from the country to the city. Further contrary to Gobineau and partly to Lapouge, Ammon admits that a slight mixture of brachycephalic blood in the dolichocephals may be a rather favorable condition for scientific and similar activities. Contrary to Hansen, Ammon statistically showed that Hansen's time limit of two generations, within which the city population without an influx of the country migrants would disappear, is too short. Again he indicated that the country migrants, having come to the city, enter not the middle classes, as Hansen thought, but from three quarters to four-fifths of them enter the proletariat class at the beginning. Only during the next generations do their offspring gradually climb up, and climbing, become less and less prolific. He stressed also that within present cities, the brachycephalic population dies out more rapidly than the dolichocephalic type, though finally, the dolichocephals are to die out also.⁵⁴

⁵⁴ AMMON, *Histoire d'une idée*, pp. 156-157.

Going gradually from a special type of research to more general problems Ammon published in 1895 his general sociological theory in the book *Die Gesellschaftsordnung und ihre natürlichen Grundlagen* (Social Order and its Natural Foundations) ⁵⁷ The essential points of this partly theoretical, partly propagandist book, are as follows. The principal defect of the existing sociological theories Ammon says has been their purely economic approach to social problems. The human being is, in the first place, an organism with certain qualities and human society is a biological phenomenon in its essence, therefore, the biological approach to an interpretation of social phenomena seems to be necessary. This biological approach is provided by the principles of Darwin's theory. Heredity, variability, struggle for life, natural selection, and survival of the fittest, furnish the principles of Darwinism which ought to be applied for an interpretation of social life also (§§ 1-9). They explain that social life appears only among such species as those for which social existence is useful from the standpoint of survival, among which are human beings. They show further that human beings are unequal from physical, mental, and moral viewpoints. This inequality is due mainly to the factor of heredity. Genius, talent, and any specific ability is primarily a result of heredity. Every society being in need of men of genius for its success in the struggle for existence, and men of genius being rare, it is in the interests of society to facilitate their production. To be successful in the struggle for existence society must approach a type wherein all its members would be appointed to such positions as would be the most suitable for their abilities. Social order and social institutions, which make such a social distribution of its members, are not something incidental, but represent a wonderful machinery created in the course of generations to carry on successfully the struggle for existence (§§ 10-11). Reminding us of these principles, Ammon proceeds to interpret fundamental social phenomena from this standpoint. His interpretation leads him to an exclusively high appreciation of the existing social order and its wonderful character. Since human beings are naturally unequal it is only natural that there should

⁵⁷ I give quotations according to its third edition, Jena, 1900, G. Fisher

be no social equality. Since men of genius and leaders are necessary for the existence of any society it is only reasonable that societies should have created many institutions whose purpose has been to facilitate their production. This purpose has been achieved on a large scale through the creation of a social stratification of the population into the upper and the lower classes, and in the prohibition or avoidance of interclass marriages. Thus, social stratification is completely justified from the biological standpoint. Since the best social order is that in which every member is put in such a position and to such work as corresponds to his innate ability in every society there must exist special machinery which tests the individuals sifts them and appoints them to a suitable place and social stratum. Such a mechanism really exists. It functions in the form of schools which sift the incapable from the capable hinder the incapable's social climbing, and facilitate the social promotion of the capable. Further, such a mechanism functions in the form of different religious, occupational, or institutional test examinations and other handicaps which it is necessary to overcome before a relatively high social position may be occupied. Those who are talented successfully will pass such obstacles and climb up, those who are stupid will fail, and must remain in a relatively low social position. Police criminal justice and punishment are further forms of this machinery which is designed to exterminate the moral and social failures and through this to perform a social selection. This social selection is only a particular form of natural selection and it is inevitable, in view of the inequality of individuals (§§ 13-14). It is useful for a society because it permits the shifting of the capable from the incapable and because it places everybody socially according to his quality. Its natural result is the existence of social strata and social inequality. Such is their origin and their justification. Ammon indicates other reasons for the organization of social strata (§§ 23 *et seq.*). One of them is to facilitate the inbreeding of the natural aristocracy by the hindering of cross marriages, and, in this way, to increase the chances for the production of men of genius. The second useful effect of the separation of the upper and the lower classes is that it permits talented children of the aristocracy to avoid the vices and evils

of the lowest classes, while at the same time putting some obstacles in the way of easy climbing from the lower classes to the upper. Interclass barriers hinder the infiltration of incapable climbers into the upper strata while the capable can overcome these handicaps. The third benefit of such a stratification is that, thanks to the privileges of the upper classes they have the material comfort absolutely necessary for a successful performance of the intellectual work of these classes. Better food, air, and other comforts are necessary for the right performance of the responsible social functions of the upper classes, while the same conditions are not so necessary for a successful performance of the unskilled work of the lower classes. The fourth benefit is that the privileges of the upper classes are efficient incentives for talented people among the lower classes to exert their talents to climb up to the upper strata. From such exertion, individuals and the whole society are greatly benefited. From the above it is clear that, in the opinion of Ammon, social stratification and unequal distribution of wealth are quite beneficial, useful, necessary and therefore entirely justified. He indicates that the distribution of income and intelligence in a society are closely correlated, and that the one form of inequality is but a manifestation of the other. Summing up this part, Ammon stresses that all in all the existing social order is extraordinarily fine, and much better than any "rational" system invented by anybody.

This analysis leads Ammon to the second part of his book. Here he indicates that at the basis of social stratification lies the racial differences of individuals. Using some historical and anthropometrical data, he contends that the upper strata have been composed of the Aryans, while the lower social classes have been principally brachycephalic (§§ 27 *et seq.*). Here he gives the conclusions which I have already mentioned, which are the theories of migration from the country to the city, the dying out process of the upper strata, the filling of their places by the climbers from the lower classes, the decrease of the fertility of the offspring of these climbers in the following generations, the process of their dying out, their replacement by the new climbers, and so on. In this way a permanent migration from the city to the country, and a permanent circulation from the bottom to the top of a society

is constantly going on. The principal resource from which have been recruited the future climbers has been the class of peasantry. Thanks to the existence of barriers only the talented upstarts may climb up successfully and besides as a general rule they can climb only gradually during the time of several generations. This is again beneficial to society. Up to this point as we may see the theory of Ammon is very optimistic—he finds the existing social order almost perfect. Does this mean that his prospects concerning the future are also optimistic? Ammon indicates that unfortunately the proportion of Aryans has been decreasing. At the end of the nineteenth century in Baden they were already only 1.45 per cent of the total population (p. 132). At the most they can now only be found in the upper classes of society. In the opinion of Ammon such a fact is an additional reason to do everything possible to preserve this superior race from disappearance. According to Ammon the future is not very hopeful and he agrees in essence with the law of decay given by Lapouge. On the other hand he states that as long as the peasant class has a high fertility there will be a possibility of filling the vacant places left by a dying-out aristocracy from the talented and severely selected country migrants and their offspring.

These are the essential points of Ammon's book. Its second part is devoted to rather political and propagandist purposes in which Ammon strongly criticizes socialism, egalitarianism and other similar theories and institutions. We need not enter into these details.

Laws of Lapouge Ammon—The best summary of these theories is a list of the laws which their authors claim as the scientific contribution and in which they try to sum up their principal generalizations. In Lapouge's formulation these laws run as follows:²⁸

1. *Law of Wealth Distribution*. In a country with a mixed Aryan-Alpine population the wealth increases in reverse relation to the cephalic index. (This means that the more dolichocephalic is the population of a class or a region of the country the greater is the wealth held by these groups and *vice versa*.)

²⁸ See LAPOUGE *L'Aryen* pp. 412 et seq. See also CLOSOV C. C., La hiérarchie des races européennes, *Revue internationale de sociologie* 1898 pp. 416-430.

2 *Law of Altitudes* In the regions where the Nordic race coexists with the Alpine race, the Nordic race localizes in the lowest altitudes (in the plains but not in the mountainous regions)

3 *Law of Distribution of the Cities* The most important cities are almost always situated in the region inhabited by the dolichocephals, and in the least brachycephalic parts of the brachycephalic regions

4 *Law of Urban Index* The cephalic index of an urban population is lower than that of the country population around the city

5 *Law of Emigration* In a population which is going to disassociate it is the least brachycephalic elements which emigrate

6 *Law of Cross Marriages (Loi des formariages)* The cephalic index of the offspring of those parents who have different regions of origin is less high than the average index of the population of these regions. This means that the less brachycephalic elements of a population are more inclined to migrate and marry mates outside of their region

7 *Law of the Concentration of the Dolichocephals* In the regions where the brachycephalic type exists it tends to concentrate in the country, while the dolichocephals tend more to the city

8 *Law of Urban Elimination* Urban life tends to perform a selection in favor of the dolichocephals, and destroys or eliminates the most brachycephalic elements

9 *Law of Stratification* The cephalic index decreases as we proceed from the lower to the upper social classes of the same locality. The average stature and the proportion of the high statures increase as we proceed from the lower to the higher strata

10 *Law of the Intellectuals* The cranium of the intellectuals is more developed in all its directions, and especially in its breadth, than is that of a common people

11 *Law of the Increase of Index* Since prehistoric times the cephalic index has tended to increase constantly and everywhere

By this statement of the "laws" we will conclude our discussion of the characteristics of these theories

4 BIOMETRIC BRANCH OF THE SCHOOL

The third principal branch of the anthropo-racial school is represented by the biometrical school, the ideas of which are set forth principally in the works of Sir Francis Galton and continued by Karl Pearson and his followers. Having started its studies with an investigation of individual differences among men, this branch has concentrated its attention on the study of heredity. These studies resulted in many generalizations of a purely sociological character, similar to the fundamental conclusions of other branches of the school.

Sir Francis Galton (1822-1911) —Among other scientists, a famous Belgian statistician, Adolph Quetelet⁵⁹ and Charles Darwin had especially great influence upon Galton and his works. To Quetelet he is indebted for an application, and the perfection of a quantitative study of individual differences and phenomena of heredity and talent. To Darwin he is indebted for many general principles applied by Galton in his theories of selection and variation. The principal works of Galton which are important from the sociological standpoint are *Hereditary Genius* (first ed. in 1869. I use the edition of 1892, London), *English Men of Science* (1874), *Inquiries into Human Faculty and Its Development* (1883), *Natural Inheritance* (1889) and *Noteworthy Families* written in conjunction with E. Schuster (1906).

Various and different as were the problems studied by Galton, he stressed, none the less, in all his works, several fundamental ideas already set forth in his early work, *Hereditary Genius*. These ideas may possibly be summed up in the following way:

1. Human individuals are different in their bodily, as well as in their psychological characteristics. They vary in stature, weight, pigmentation, health, energy, sensitivity, power of hearing, mental imagery, gregariousness, intelligence, ability, and so on. Contrary to the popular idea of the equality of men, they are found to be unequal.

2. Physical, as well as mental, characteristics are distributed

⁵⁹ See QUETELET, A., *Sur l'homme et le développement de ses facultés, un essai de physique sociale*, 2 vols., Paris, 1835. *Anthropométrie ou mesure des différentes facultés de l'homme*, Bruxelles, 1870.

according to a typical curve of frequency distribution among the individuals of the same society From the standpoint of intelligence, for instance, one million individuals graded according to their intelligence from the highest genius to the most stupid, both below and above the average, into mental classes separated by equal intervals, will give approximately the following figures

Grades of Natural Ability Separated by Equal Intervals		Number in Each Million of the Same Age
Below Average	Above Average	
a	A	256 791 or 1 in 4
b	B	162 279 or 1 in 6
c	C	63 563 or 1 in 16
d	D	15 696 or 1 in 64
e	E	2 423 or 1 in 413
f	F	233 or 1 in 4 300
g	G	14 or 1 in 79 000
x (all grades below g)	X (all grades above G)	1 or 1 in 1 000 000
On either side of average		500 000
Total both sides		1 000 000

More than half of each million is contained in the two mediocre classes *a* and *A*, the four mediocre classes, *a*, *b*, *A*, *B*, contain more than four fifths, and six mediocre classes more than nineteen-twentieths of the entire population Thus the rarity of commanding ability, and the vast abundance of mediocrity is no accident, but follows of necessity, from the very nature of these things ⁶⁰

3 Individual differences are due to two principal factors — environment and heredity, but of these two factors, the factor of heredity is far more important The standpoint of Galton may be seen from the following quotations

I acknowledge freely the great power of education and social influences in developing the active power of mind just as I acknowledge the effect of use in developing the muscles of a blacksmith's arm and no further Let the blacksmith labor as he will, he will find there are certain feats beyond his power ⁶¹

A man's natural abilities are derived by inheritance, under exactly the same limitations as are the form and physical features of the whole organic world ⁶²

⁶⁰ GALTON, F, *Hereditary Genius*, pp 30-31, London, 1892

⁶¹ *Ibid*, pp 12 et seq

⁶² *Ibid* pp 1 et seq *Noteworthy Families*, pp xx et seq

4 The bulk of Galton's studies has been devoted to proving the decisive importance of the factor of heredity. In various ways he indefatigably tried to show this. The principal evidences given by him are as follows

(a) The study of men of genius shows that talent and ability are inherited. Hence, "able fathers produce able children in a much larger proportion than the generality." Galton's study of English men of science, of men of genius, and of Fellows of the Royal Society has shown that the families which have two or more eminent men produce more famous men of genius than the families with only one eminent man, and that "the nearer kinsmen of the eminent are far more rich in ability than the more remote." In other words, we have "a rapid diminution in the frequency of noteworthiness as the distance of kinship increases." Correspondingly, "the expectation of noteworthiness in a kinsman of a noteworthy person is greater in the following proportion than in one who has no such kinsman: if he be a father, 24 times as great, if a brother, 31 times, if a grandfather, 12 times, if an uncle, 14 times, if a male first cousin, 7 times, if a great great-grandfather on the paternal line, 3 and a half times."⁶³

(b) Specific ability, like that of a mathematician, musician, eminent judge, or of a statesman is commonly inherited.

(c) Environment cannot create a genius out of a mediocre man, and, on the other hand, unfortunate environment is usually overcome by a man of talent or genius.

It is a fact, that a number of men rise before they are middle-aged from the humbler ranks of life to worldly position in which it is of no importance to their future career just how their youth has been passed.

At that age they have usually overcome all hindrances, and have reached the position of those who were born into more fortunate conditions. As a result, such men of genius, though born in humble families, by the time of their maturity are in an equally fortunate position as those who were born amidst comforts. For instance, "the hindrances of English social life are not effectual in repressing high ability. The number of eminent men in Eng

⁶³ *Hereditary Genius*, pp. 53 et seq., 102 et seq., *Noteworthy Families*, pp. xii et seq.

land is as great as in other countries, (*e g*, in the United States) where fewer hindrances exist " "Social hindrances cannot impede men of high ability from becoming eminent " "I feel convinced that no man can achieve a very high reputation without being gifted with very high ability " (*Hereditary Genius*, pp 34 et seq)

(d) A study of twins made by Galton has shown that similar nurture of the twins does not make them similar when the twins are biologically unlike, and that the dissimilarity of their training scarcely affects the similarity when they are biologically alike

There is no escape from the conclusion that nature prevails enormously over nurture when the differences of nurture do not exceed what is commonly found among persons of the same rank of society and in the same country ⁶⁴

(e) The secondary importance of environment is demonstrated also by the fact that the same objective environment is seen and perceived differently by people with different inheritance, stimulating them to quite different reactions, emotions, and interests Furthermore, different environments often produce similar types of personality with great similarity in achievement and *vice versa*, for from very similar environments often come quite different types of personalities with entirely different characteristics

Such is the principal series of facts and statements which led Galton to the conclusion that the factor of heredity is more important than that of environment

5 Having shown the differences among individuals, Galton applies the same principle to groups and races In his works he indicated that the upper and the lower strata of a society are not equal in regard to ability, that the upper strata have produced more men of genius and talent than the lower strata, and that such a difference is due not so much to different environment as to heredity Races are also unequal If we judge their ability according to the number of the men of genius produced per a definite number of population then it is clear that the ancient Greeks in Athens, especially in the period from 530 to 430 B C , produced one genius of the first class per about 4,822 or even per

⁶⁴ *Inquiries into Human Faculty*, pp 155-173

3,214 population, while in England, this number of population per genius is much higher. As to the negroes, they have not been able to produce any man of genius in their whole history.⁶⁵

6 From the above it follows that the historical destinies of a society are primarily determined by the changes in the hereditary qualities of its population, or in other words, through selection. Environmental changes taken separately have only secondary importance, and are rather the result than the cause of the changes in the hereditary qualities of the population. In this way Galton laid down the theory of selection and of racial factors which greatly influenced Ammon, Lapouge and other partisans of the anthropometrical school. Furthermore, Galton's works have given a great impulse to eugenics as a method of social reorganization based on the correct direction of the changes in the hereditary qualities of the population through selection and selectional agencies. It consists in the facilitation of the procreation and the fertility of the best — biologically, mentally, and morally, and in hindering the procreation of the socially inadequate and of the biologically and mentally inferior. Galton's work in this field has found a great many followers, and at the present moment eugenics is already becoming an important method of social reconstruction and social politics.

Such in brief, are Galton's important contributions to the sociological viewpoint. Being the inferences from the factual material quantitatively studied, they have exerted a great influence on biologists, psychologists, and sociologists. Galton's work has been continued by many a prominent scientist and scholar, among whom an especially conspicuous place is occupied by Karl Pearson and his collaborators.

Karl Pearson (1857-) — The first great contribution of Karl Pearson consists in his perfecting the quantitative method for studying social, psychological and biological phenomena. He was also one of the most prominent creators of the mathematical theory of correlation. This has been worked out in his series of biometric studies.⁶⁶ We do not need to enter here into their

⁶⁵ *Hereditary Gensus*, pp. 325-337.

⁶⁶ See PEARSON, *Mathematical Contributions to the Theory of Evolution*, Series from I to XVIII published in Biometric Laboratory Publications, and in the *Proceedings of the Royal Society* and in *Biometrika*.

analysis Their great value is recognized by all specialists and is beyond question

The second category of Pearson's and his followers' contributions consists in a series of mathematical studies of the phenomena of variation and heredity in man To Pearson's group probably more than to any other, we are indebted for a quantitative study of these problems The result of these researches has been to show "that man varies, that these variations, favorable or unfavorable, are inherited, and that they are selected" ⁶⁷

We not only know that man varies, but the extent of that variation in both man and woman has been measured by the Biometric School in nearly two hundred cases The variability within any single local race of man amounts to from 4 or 5 to 15 or 20 per cent of the absolute value of the character ⁶⁸

As to the inheritance of these variations, "there is not the slightest doubt They are not mere somatic fluctuations, but correspond to real germinal differences"

These studies have shown that members of the same stock inherit not only the physical, but the psychological and pathological characteristics also This is shown by the resemblance between the parent and his children, and by that among the siblings The coefficient of correlation in man's inherited physique is almost the same as that in other species The following tables give the essential results of the studies of inheritance in man, obtained by Pearson and his collaborators David Heron, Ethel M Elderton, Edgar Schuster, Amy Barrington, E Nettleship, C H Usher, Julia Bell, Charles Goring, S J Perry, E G Pope, E C Snow, Lee and others

Table II gives the coefficients of the correlation in the inheritance of pathological characteristics

Table III gives the results of the studies of inheritance of psychical characteristics

These tables show the principal results obtained by Pearson's school in its study of inheritance The coefficients of correlation testify that physical, pathological, and psychical characters are in

⁶⁷ PEARSON, K., *The Scope and Importance to the State of the Science of National Eugenics*, 2nd ed., p. 26, London, 1909

⁶⁸ *Ibid.*, p. 26

TABLE I INHERITANCE OF PHYSIQUE IN MAN AND OTHER SPECIES⁴⁹

Man—Paternal Inheritance Males only		Fraternal Inheritance	
Character	Coefficient of Correlation or Intensity of Inheritance	Character	Coefficient of Correlation or Intensity of Inheritance
Stature	51	Stature	51
Span	45	Span	55
Forearm	42	Forearm	49
Eye colour	55	Eye colour	52 54
		Head breadth	59
		Head length	50
		Head height	55
		Cephalic index	49
		Health	52
		Hair colour	62
		Hair curliness	52

PARENTAL INHERITANCE IN DIFFERENT SPECIES

Species	Character	Coefficient of Correlation
Horse	Coat Colour	52
Basset hound	Coat Colour	52
Greyhound	Coat Colour	52
Aphus	Right Antenna (Frontal Breadth)	44
Daphnia	Protopodite (Body Length)	47

TABLE II PATHOLOGICAL INHERITANCE

Condition	Parental	Fraternal
Deaf mutism	54	73
Insanity	58	48
Pulmonary tuberculosis	50	48
Mean value	54	56

⁴⁹ *Ibid* pp 27-29

TABLE III. RESEMBLANCE OF SIBLINGS⁷⁰

Character	Boys	Girls	Boy and Girl
Vivacity	47	43	49
Assertiveness	53	44	52
Introspection	59	47	63
Popularity	50	57	49
Conscientiousness	59	64	63
Temper	51	49	51
Ability	46	47	44
Handwriting	53	56	48
Mean	52	51	52

INHERITANCE OF ABILITY MALE AND MALE

Parental	from .49 to .58 according to the groups studied
Fraternal	from .52 to .56 according to the groups studied

herited In this way the school confirmed the principal statements of Galton.

Not mentioning other important contributions of Pearson and his school,—those which lie somewhat far from the field of sociology,—let us proceed to the sociological conclusions which have been inferred by Pearson from these and other biometrical studies. They have been laid down in his half popular pamphlets and books, such as the quoted *The Scope and Importance to the State of the Science of National Eugenics*, *The Function of Science in the Modern State*, *National Life from the Stand point of Science*, *Social Problems Their Treatment, Past, Present, and Future*, *Eugenics and Public Health*, partly *The Grammar of Science* and some other works, not to mention Pearson's special researches.

In their essential points, the sociological teachings and practical advices of Pearson are identical to those of Gobineau and Chamberlain, Lapouge, Ammon and Galton. The primary sociological principles of Pearson's school are as follows. First "the biological factors are dominant in the evolution of mankind, these, and these alone, can throw light on the rise and fall of nations,

⁷⁰ *Ibid.*, pp. 29-32

on racial progress and national degeneracy.⁷¹ Man's evolution like that of animals is an evolution by natural selection. It

is based upon four factors: (a) that characters are variable; (b) that characters are inherited; (c) that there is a selective death rate, i.e. that individuals possessing characters or combinations of characters in a higher or less degree than other individuals die on the whole sooner or later than the latter; (d) That those individuals who die early leave fewer offspring than those who die late.⁷²

From these principles it follows that changes in a racial stock of a population through selection furnish the most important factor in the rise or fall of a nation. If selection proceeds in favor of survival and multiplication of the best stocks the nation progresses; if its direction is opposite it decays. This is true in regard to the progress of a definite society as well as to the whole of mankind.

If you have once realized the force of heredity you will see in natural selection—the choice of the more physically and mentally fit to be the parents of the next generation—a most beneficent provision for the progress of all the forms of life. Nurture and education may immensely aid the social machine, but they will not in themselves reduce the tendency toward the production of bad stock. Conscious or unconscious selection can alone bring that about.

What I have said about bad stock seems to me to hold for the lower races of man. How many centuries, how many thousands of years, have the Kaffir or the negro held large districts in Africa undisturbed by the white man? Yet their intertribal struggles have not yet produced a civilization in the least comparable with the Aryan. Educate and nurture them as you will. I do not believe that you will succeed in modifying the stock. History shows me one way and one way only in which a high state of civilization has been produced, namely in the struggle of race with race and the survival of the physically and mentally fitter race.

This superiority of the Aryan race justifies, according to Pearson, that the white man should go and completely drive out the inferior race. From the same standpoint cross marriage between different races is not desirable because through it, if the bad

⁷¹ *Scope and Importance of Science*, p. 38.

⁷² *The Function of Science in the Modern State*, 2d ed., p. 3, Cambridge, 1919.

stock be raised, the good is lowered" ⁷³ The struggle for existence goes on not only among individuals, but among groups and races also

The dependence of progress on the survival of the fitter race gives the struggle for existence its redeeming features, it is the fiery crucible out of which comes the finer metal

You may hope for a time when the sword shall be turned into the ploughshare, when the white man and the dark shall share the soil between them, and each till it as he lists But, believe me, when that day comes mankind will no longer progress, there will be nothing to check the fertility of inferior stock, the relentless law of heredity will not be controlled and guided by natural selection Man will stagnate, and unless he ceases to multiply, catastrophe will come again ⁷⁴

For this reason, Pearson views pessimistically a decline in the fertility of the civilized nations (p 29), still more pessimistically he regards the differential fertility of present society, where the better social classes physically and mentally reproduce themselves in a much less degree than the inferior stocks (See the statistical summary of these studies of Pearson's school in his *Scope and Importance of the Science*, pp 36-37) He considers this fact as the greatest danger confronting the progress of contemporary society

The above outlines Pearson's sociological position More specifically I will mention that he, like Ammon, views positively the existence of different social strata

Let there be a ladder from class to class, and occupation to occupation, but let it not be a very easy ladder to climb, great ability (as Faraday) will get up, and that is all that is socially advantageous The gradation of the body social is not a mere historical anomaly, it is largely the result of long continued selection, economically differentiating the community into classes roughly fitted to certain types of work

Accordingly, he suggests that education must be different for different individuals and groups, corresponding to their inner ability ⁷⁵

⁷³ PEARSON, K, *National Life from the Standpoint of Science*, 2d ed., pp 20-24.

⁷⁴ *Ibid.*, pp 26-27

⁷⁵ *The Function of Science* pp 9-12

I will not outline the other ideas of Pearson, for the above is sufficient to make his general sociological standpoint clear. We see that in essence, they are very similar to the ideas given by the former representatives of this school, in spite of their different approach to the social problem.

5 OTHER ANTHROPO RACIAL, HEREDITARIST, AND SELECTIONIST INTERPRETATIONS OF SOCIAL PHENOMENA

Besides the above theories, there are a great many other works which sustain the same or similar principles in an interpretation of various social phenomena. Among them the first group is composed of a series of works whose purpose is to show the inequality of races, the supremacy of the white race, and especially of certain of its varieties, such as the "Teutonic," or the "Nordic" or the "Anglo Saxon" race. Representing in its bulk a mere modification and popularization of the principles laid down by the above authors, with a few exceptions, these works do not amount to much in their scientific value, and are mostly a kind of an intentional or unintentional propaganda literature. They have all the faults of the works of the preceding authors without their positive qualities. Their "superior" race is often made to correspond with a certain nationality or nation, and this superior "race-nation" is decided mainly by the nationality of the corresponding author. Accordingly, we have "the Teutonic," "the Anglo-Saxon," "the Celtic," "the Latin," and "the Jewish" theories of bio social superiority of races or nations. The works of M. Grant, L. Stoddard, S. R. Humphrey, L. Woltmann, Wilser, Otto Hauser, J. L. Reimer, J. W. Burgess, A. Schultz, J. A. Cramb, W. S. Sadler, Ch. W. Gould, C. S. Burr, and partly even in some of the works of W. MacDougall, F. K. Gunther, and F. Lenz are found samples of this kind of literature.⁷⁶

⁷⁶ See GRANT, M., *The Passing of the Great Race*, 1916 (a fallacious vulgarization of the works of Gobineau, Lapouge, Ammon, Galton, and Pearson, without mentioning these names); STODDARD, L., *Racial Realities in Europe, The Rising Tide of Colour*, 1920; HUMPHREY, S. R., *Mankind, Racial Values and the Racial Prospect*, N. Y., 1917; WOLTMANN, L., *Politische Anthropologie*, Leipzig, 1903; *Die Germanen in der Renaissance*, 1905; WILSER, *Rassen und Völker*, 1912; HAUSER, O., *Der Blonde Mensch*, Weimar, 1921; REIMER, J. L., *Ein Pangermanisches Deutschland*, BURGESS, J. W., *Political Science and Comparative Constitutional Law*, Boston, 1890, (with the exception of the discussed trait, the work is very valuable in many other respects); SCHULTZ, A., *Race or Mongrel*, 1908; SADLER, W. S.,

The second category of such works deals principally with the various forms of social selection, with their results, and with the changes in the racial composition of a population as a factor of various social phenomena, such as the progress and decay of society and civilization. The works of this group are much more scientific, and, in the majority of the cases, are very valuable. Such are the works of P. Fahlbeck, S. J. Holmes, G. Sensi, C. Gini, Otto Seeck, W. Schallmayer, T. Frank, P. Jacoby, A. de Candolle, W. Bateson, E. Huntington, and partly of P. Sorokin, D. S. Jordan, V. Kellog, F. A. Woods, and many others.⁷¹

The third category of these works tries to establish a correlation between the various physical traits of a man and his moral, intellectual, temperamental, and socio-psychical traits. Side by side with this, many works of this group try to correlate the many bodily, vital and mental characteristics of social groups and classes, together with their social positions and historical roles. In spite of several fallacies and hasty generalizations made in some of these works, they are, as a whole, very valuable, especially when they relate a series of special studies in this field. The writings of this group are too extensive to be enumerated here. A more or less complete bibliography of them may be found in my book, *Social Mobility* (Chaps. X-XII, and *passim*). Part of it will be indicated further in my criticism of the anthropo-racial

Long Heads and Round Heads, 1918. GOULD, CH. W., *America, a Family Matter*, 1922. BURR, C. S., *America's Race Heritage*, 1922. CRAMB, J. A., *The Origins and Destiny of Imperial Britain*, London, 1915. McDUGALL, W., *Is America Safe for Democracy?* 1921, (there are several valuable and sound points, but the characteristic of the Nordic and other races is far from being scientific). GUNTHER, F. K., *Rassenkunde des Deutschen Volkes*, 1924, a very valuable work, but in the discussed point is rather questionable. The same is to be said of F. Lenz's valuable theory in E. BAUR, E. FISHER, F. LENZ, *Grundriss der menschlichen Erblichkeitslehre und Rassenhygiene*, 2 vols., München, 1923 and of A. BASLER's *Einführung in die Rassen- u. Gesellschafts Physiologie*, Stuttgart, 1925.

⁷¹ FAHLBECK, P., "La décadence et la chute des peuples," *Bulletin de l'Institut International de Statistique*, Vol. XV, pp. 367-389. Der Adel Schwedens, Jena, 1903. SENSI, G., "Teoria dell'equilibrio di composizione delle classi sociali," *Rivista Italiana di Sociologia*, 1913. GINI, C., *I fattori demografici dell'evoluzione delle nazioni*, Torino, 1912. SEECK, O., *Geschichte des Untergang der antiken Welt*, 3rd ed., Berlin, 1910, all volumes. FRANK, T., "Race Mixture in the Roman Empire," *American Historical Review*, Vol. XXI, pp. 705 ff. HOLMES, S. J., *The Trend of Races*, N. Y., 1921. SCHALLMAYER, W., *op. cit.*, JACOBY, P., *Etudes sur la sélection chez l'homme*, 2nd ed., Paris, 1904. BATESON, W., *Biological Fact and the Structure of Society*, Lond., 1912. HUNTINGTON, E., *The Character of Races*, N. Y., 1924. SERGI, G., *La degenerazione umana*, Milano, 1889. DE CANDOLLE, A.,

school Here it is sufficient to mention merely a few names out of the great many who have made contributions in this field C Lombroso, and his followers, Ch Goring, W Healy, F A Woods, A Niceforo, J Bertillon, J Beddoe, M Muffang, E M Elderton Pagliani, R Livi, P Ricardi, Pfizner, Collignon, Topinard, Broca, Manouvrier, A Hrdlicka, Chalumeau, Oloriz, Anouchin B A Gould, H P Bowdich, Talko Hryncewitz, Ch Roberts, J F Tocher, W Porter E A Doll, H Goddard, Ch Davenport, H Ellis, F Maas, E B Gowin, C Rôse, B T Baldwin, L M Terman Samosch, E Schlesinger, J E Young J G Frazer, A Vierkandt, P Descamps E Mumford, Matiegka, Spitzka, F G Parsons Shuster, A MacDonald Durand de Gross, A Constantin, A Binet Deniker, Bushan S D Porteus, J Dräseke, W Todd E Rietz, R Pearl, McK Cattell, E L Clarke, W Z Ripley, P Tarnowsky W Clarke, A E Wiggam A Ploetz, P Sorokin W R Macdonel, A Odin, J Philpitschenko, W Ogle, C Novocelsky, C Ballod, P Mombert, L Hersch, Fr Prinzing, Kôrost E Levasseur, A Oettingen, G v Mayr, H Westergaard, J Wappaus L Dublin L March F Savorgnan, N Humphreys, Dr Farr, E Wellman W Claassen, R Thurnwald, Kozcinsky, W MacDougall, and a great many other investigators have contributed to an elucidation of the problem—as to whether there is a correlation between the bodily and the mental traits, between specific racial and intellectual qualities, between the social position of an individual or of a group and their physical, mental, and moral equipment Also, whether a leading, or privileged group is composed of a selected people, or whether they represent a mere conglomeration of people who ‘incidentally,’ and “thanks to a mere good luck,” have succeeded in climbing up and enjoying their privileges⁷³

The fourth category of works deals principally with the rôle of heredity in man's nature and behavior, and in the various social processes Stressing their role the theories try to interpret, in

Histoire des sciences et des savants Genève 1885 SOROKIN, P, *Social Mobility* Parts III, IV, WOOD, F A *Mental and Moral Heredity in Royalty* 1906 *The Influence of Monarchs*, 1913 and D S JORDAN's and V KELLOG's works indicated further Many of these works are discussed in the subsequent chapters of this book

⁷³ See the works of these, and some further references of other authors, and their analysis, in my *Social Mobility*, Chaps X-XII

the light of the factor of heredity, a series of social processes. In this respect the group continues the studies of Galton, Pearson, and partly of Lapouge and Ammon. This type of literature is immense. The list of the works and their authors would be liable to occupy several dozens of pages. A legion of the biologists, psychologists, and sociologists compose it. Many of the above authors belong to this group also. Besides the names mentioned, I shall indicate here only a few names like E. Thorndike, A. Ploetz, R. M. Yerkes, Ch. Richet, P. Popenoe, R. H. Johnson, G. Poyer, and so on. The majority of the eugenists and of the investigators of human heredity have contributed to the achievements of this group.⁷⁹

The fifth group is composed of historical works devoted to the problem of the Aryan race, and of the works in physical anthropology dealing with races and their history. As representative works of this group may be mentioned those of I. Taylor, S. Reinach, H. Peake, V. G. Childe, W. Ridgway, H. H. Bender, G. Kossina, and J. de Morgan on the one hand,⁸⁰ on the other, the anthropological works of P. Topinard, Morselli, G. Sergi, A. C. Haddon, R. A. Dixon, W. Z. Ripley, H. J. Fleure, A. Keith, Deniker, and of many other physical anthropologists.⁸¹ Such are the principal groups of works which discuss the problems stressed by the leaders of the anthropo-social, the hereditarist, and the selectionist schools in sociology.

After this survey, let us now pass to an analysis of that which

⁷⁹ See the bibliography in HOLMES, S. J., *The Trend of the Race*, in P. POPENOE and R. JOHNSON, *Applied Eugenics*, N. Y., 1918 and in Holmes' special book of bibliography in eugenics.

⁸⁰ See TAYLOR, I., *The Origin of the Aryans*, London, 1890. REINACH, S., *L'origine des Aryens*, Paris, 1892. PEAKE, H., *The Bronze Age and the Celtic World*, London, 1922. CHILDE, V. G., *The Aryans*, N. Y., 1926. RIDGWAY, W., *The Early Age of Greece*, Cambridge, 1901. ZABOROVSKI, M. S., *Les peuples Aryens*, 1908. BENDER, H. H., *The Home of the Indo-Europeans*, Princeton, 1922. KOSSINA, G., *Die Indogermanen*, Würzburg, 1921. DE MORGAN, J., *Prehistoric Man*, N. Y., 1925. See about other works in HANKINS, *op. cit.*, Chaps. II, III, IV.

⁸¹ DIXON, R. A., *The Racial History of Man*, N. Y., 1923. RIPLEY, W. Z., *The Races of Europe*, TOPINARD, P., *Anthropology*, Eng. tr., 1878. MARTIN, R., *Lehrbuch des Anthropologie*, Jena, 1914. KEITH, A., *Man*, N. Y., 1913. *Anthropologie*, in HINNEBERG'S *Die Culture der Gegenwart*, Vol. V, Leipzig, 1923. FLEURE, H., *The Peoples of Europe*, Lond., 1922. HADDON, A. C., *The Races of Man*, N. Y., 1925. SERGI, G., *Le origine umane*, Torino, 1913. MORSELLI, *Antropologia generale*, Torino, 1910.

in the principles of the school is true and also that which is a fallacy or guess

6 CRITICISM OF THE SCHOOL

Let us take the principal statements of the school one by one and consider to what extent they are accurate

1 *Hypothesis of the Polygenic Origin of Human Races*—One of the bases for the theory of Gobineau and of some other partizans of the school is that different human races sprang from different sources and have different origins. This heterogeneity of origin is supposedly responsible for the relative superiority and inferiority of the races. Is the hypothesis true? We can answer only this—that the theory as well as its opposite hypothesis of the monogenic origin of human races is still nothing but a guess. We do not have any definite and decisive proof of the accuracy of either of these hypotheses.⁸² For this reason the argument of Gobineau as well as the opposite arguments of his opponents cannot have any conclusive value.

2 *Hypothesis of the Aryan Race*—We have seen that almost all partizans of the school contend that the most superior race is the Aryan branch of the white race. Is this theory valid? Are the characteristics of this race definite? Are its origin and evolution and the statement that all civilizations have been created by this race sufficiently proved? As we have seen the Aryan race hypothesis has passed through two stages. In the writings of Gobineau the term is used rather indefinitely without any attempt to outline its bodily or zoological characteristics. Only in the works of Lapouge and other anthropometrists do we find an attempt to indicate its zoological or bodily traits. Accordingly the discussion of the hypothesis must be divided into two parts. Let us first take the Aryan race as it appears in the writings of Gobineau and his predecessors. The origin of the Aryan race hypothesis is due to the works of the linguists who since the formulation of William Jones's theory have discovered that the Sanscrit language was the source of the European and a few

⁸² See SERGI G. *Le origine umane* Torino 1913. MORSELLI *Antropologia generale* Torino 1910. SERGI G. *Hominidae* Torino 1911. TOPINARD *Anthropology* London, 1878. HADDON A. C. *The Races of Man*, N. Y. 1925. DIXON R. B., *The Racial History of Man* pp. 503 ff. N. Y. 1923.

other languages, and that the Greek, the Latin, and the European languages are related to one another. This fact led to the conclusion that all peoples who speak the "Aryan" languages compose different branches of the same race. Such an origin for the hypothesis of the Aryan race at once shows its weak point, for the fact that many individuals or social groups speak the same language does not necessitate that all of them must belong to the same racial group, in a zoological sense of the term, "race." At the present time peoples of very divergent racial stock speak English, while the peoples of one race may speak different languages. So it was in the past, and, therefore, it is impossible from the fact of a community or similarity of language to infer the community or identity of race. This is exactly what was done by the early "Aryanists."⁸³ In the second place, it is not known exactly where the Aryan race originated, nor what has been the area and the route of its migration. The Aryanists themselves differ in this respect greatly. All that is offered in this field is a mere hypothesis. As yet no unanimity is reached by their historians. In the third place, the theory that all, or at least the majority of the great civilizations, have been created by the Aryans is found to be still more hypothetical. Since the zoological traits of the Aryan race were not defined in early writings, their authors did not have any certain basis for saying that the ancient Egyptians, or the Assyrians, or the Greeks, or the Romans were Aryans in a zoological sense. Even in the linguistic sense, these peoples differed widely from one another, but granting that they had been alike in this respect, this would not have given any reason for concluding that they were near racially. These considerations are enough to show that the Aryan race hypothesis, in its early stage, was a mere guess which might, and might not, have been true, and on which it is impossible to build any valid scientific theory.

3 *The Nordic, or Homo-Europeus, Hypothesis of Lapouge*

⁸³ See the details in HOUZÉ, E., *L'Aryen et l'anthroposociologie*, pp. 1-33, Bruxelles, 1906; REINACH, SALOMON, *L'origine des Aryens histoire d'une controverse*, Paris, Leroux, 1892; TAYLOR, I., *The Origin of the Aryans*, London, 1890; PEAKE, H., *The Bronze Age and the Celtic World*, London, 1922, quoted works of V. G. Childe, M. S. Zaborovsky, H. H. Bender, G. Kossina, J. de Morgan. A good survey of the hypotheses is given in HANKINS, *op. cit.*, Chap. II.

and Ammon, and the Lapouge Ammon Laws—In the works of Lapouge and Ammon, the Aryan race hypothesis became more definite. As we have seen, Lapouge's race of *Homo Europæus* is tall, blond, and dolichocephalic. With these traits Lapouge correlated mental and moral superiority in connection with which he formulated the above "laws of Lapouge-Ammon." Now, to what extent is this theory warranted by the facts, and of what validity are the above "laws"? Since we have here more clearly cut statements, it is easier to analyze them definitely than it was in the former case. Whatever may be the origin of this racial type,⁸⁴ the facts do not seem to corroborate the essentials of Lapouge's hypothesis, and the same is true of many of his "laws." In the first place, contrary to the conception of Lapouge and Ammon, dolichocephaly does not seem to be necessarily correlated with mental and intellectual superiority, extraordinary energy, or initiative and talent. The Australians, the Eskimos, the New Caledonians, the Hottentots, the Kaffirs, the Negroes of western Africa and some other primitive people have the most conspicuous dolichocephalic index (from 71 to 75)⁸⁵ and yet they are very primitive and have not shown any signs of mental superiority. Lapouge, confronted with this fact, tried to offset its significance by the statement that

I have never said or thought that the superiority of the homo-Europæus is due to their mere dolichocephaly but it is possible to claim that there is a general correlation between dolichocephaly and the greatest amount of impulsive activity. *Within any specific race*, its more dolichocephalic elements are dominant. In Mexico, in Java, and among the negroes the dolichocephalic elements occupy the higher social strata, while the brachycephalic elements compose the bulk of the population of the lower social classes. All dominant races are dolichocephalic.⁸⁶

This latter statement is somewhat self contradictory, but, ignor-

⁸⁴ In the terminology and classification of Professor Dixon this type is near the Dixon Caspian type. See Dixon's theory of the origin of different races of their migration and distribution on the earth. DIXON, R., *The Racial History of Man*, N. Y., 1923, passim and especially the chapter "General conclusions."

⁸⁵ TOPINARD, *Anthropology*, pp. 240-242.

⁸⁶ LAPOUGE, *L'Aryen*, p. 395. Compare this with other statements of Lapouge in *Social Selections*, pp. 40, 78-79, 410 and seq.

ing thus, is it true that within each race its dominant classes are composed principally of dolichocephals? Is it true among the leaders, the upper classes, or the prominent men of each race, that the proportion of the dolichocephals is much greater than among the lower classes and the common people? These questions must be answered rather negatively, since neither Lapouge nor any other Aryanist has given a satisfactory proof of this contention.

In spite of the common belief that the aristocracy of Europe has been composed of the dolichocephalic type, and that the higher social classes have been predominantly longheaded, this opinion may be seriously questioned.⁸⁷ First, the data concerning the past are very scarce and uncertain. Second, we certainly know that several prominent kings of the past, *e.g.*, Tiberius, and some other Roman emperors were rather broadheaded. If it is more or less certain that the earliest prehistoric population of Europe, especially its lowest strata, was extremely longheaded,⁸⁸ we still do not have any reliable facts on which to base an opinion that the aristocracy and the leaders of that time were still more dolichocephalic. The data given by Lapouge⁸⁹ and by some others concerning the Greek, Roman, and mediæval aristocracy is extremely scarce and too uncertain to be a reliable basis for a more or less certain generalization. A few skulls, whose bearers and, consequently, whose social position, is unknown, and a few references to pictures and statues, with which it is possible to compare the opposite type of pictures and statues, furnish practically all the evidence upon which is based the hypothesis of the longheaded aristocracy of ancient times.⁹⁰ All that we have, as

⁸⁷ The recent attempt by B. S. Bramwell to prove it gives only a mass of incidental and self-contradictory data which cannot prove anything and which, as we shall see further, are disproved by the facts. See BRAMWELL, B. S., *Observations on Racial Characteristics in England*, *The Eugenic Review*, October, 1923. The same must be said about H. Ovslow's "Fair and Dark," *The Eugenic Review*, 1920-21, pp. 212-217, 480-491. Similar statements of McDougall and W. Ripley are also dogmatic. It is curious to note that K. Pearson in his earlier work set forth an opposite hypothesis of the superiority of brachycephals. See his *The Chances of Death*, pp. 290-292, London, 1897.

⁸⁸ See RIPLEY, W. Z., *The Races of Europe*, 1910, pp. 456-465.

⁸⁹ LAPOUGE, *op. cit.*, pp. 40 ff., 410 ff.

⁹⁰ See the reasonable, critical remarks in HOUZÉ, E., *L'Aryen et l'Anthropologie*, Travaux de l'Inst. de Sociologie, and in KOVALESKY, M., *Contemporary Sociologists*, (Russian) Chap. VIII, HANKINS, *op. cit.*, *passim*, PEARSON, *ibid.*, p. 290.

proof of the hypothesis of the longheadedness of the higher classes is the different group measurements of the contemporary populations of Europe. It is true that much of the data obtained by Ammon and Lapouge and several other anthropologists seems to corroborate it, but other data, supplied partially by the same and other authors, contradict it. We must conclude then that the hypothesis is at best, still uncertain and not proved. This may be seen from the following representative figures:

Niceforo⁹¹ in his measurement of well to do and poor children found that in both groups there were both types, and that in this respect there was no significant difference.

In 594 of the most gifted children of California "various types of cephalic indices are found, but the majority of the children are of the mesocephalic type." Cephalic indices are as follows:

Age	Boys	Girls
7	81	83
8	86	82
9	81	79
10	81	80
11	80	80
12	80	80
13	80	79
14	79	80
15	80	81

From this it is seen that the most gifted children of America (with I.Q. 151.33) are far from being dolichocephalic in their total.⁹²

Data given by Dr. Parsons show that the cranial index of the higher social groups of the English population is by no means more dolichocephalic than that of the criminals or the general population. This is seen from the following figures (See table on page 271).⁹³ Besides, the index of the British population since the eighteenth century has become more and more brachycephalic, and yet we cannot say that during the eighteenth and nineteenth centuries the English people became stagnant and less progressive than they had been before.

⁹¹ NICEFORO, A., *Les classes pauvres*, pp. 43-44. Paris, 1905.

⁹² Terman, L., *Genetic Studies of Genius*, 1925. Vol. I. Table 35, pp. 148, 170.

⁹³ PARSONS, F. G., "The Cephalic Index of the British Isles," *Mon.*, February, 1922, pp. 19-23.

Social Groups	Cephalic Index
British criminals	78.5
Population of the 19th century	74.9-77.5
Higher and educated groups (intellectuals, professors and students of Oxford, Cambridge, King's College, Royal Engineers and so on)	77.6-81.9

Measurements of American children by A. MacDonald show that "longheadedness increases in children as ability decreases. A high percentage of dolichocephaly seems to be concomitant with mental dullness" ⁹⁴

Furthermore, the data obtained by Dr. Rösse, in spite of his own desire to corroborate the dolichocephalic myth, are quite contradictory and do not show any definite correlation. This is observable in the table on p. 272 ⁹⁵

These representative data, taken from many figures given by Rösse, show that if there is any correlation between higher social position and dolichocephaly, it is so indefinite, and is contradicted by so many exceptions, that we are entitled to disregard it as being non-existent.

The measurements of the children of Liverpool by Muffang, of the skulls of the Polish nobility, educated groups, and common people by Talko Hryniewicz, of Spanish students and people by Oloriz, of Belgian murderers by Heger and Dallemagne, of various classes in Italy by Livi, and other similar measurements do not show any evidence of this alleged dolichocephaly of the upper classes in Europe ⁹⁶

These results, followed by Lapouge's own acknowledgment that "the necessary data about the cephalic index of the different

⁹⁴ MACDONALD, A., *Man and Abnormal Man*, 1905, p. 19.

⁹⁵ RÖSSE, C., "Beiträge zur Europäischen Rassenkunde," *Archiv für Rassen- und Gesellschafts Biologie*, 1905, pp. 760, 769-792. Recently J. R. Musselman and G. E. Harmon also did not find any correlation between the cephalic index and mental agility. See their papers in *Biometrika*, Vol. XVIII, 1926, pp. 195-206, and 207-220. The mean coefficient of the correlation between cephalic index and intelligence is .061. PEARSON, K., "Relationship of Mind and Body," *Annals of Eugenics*, p. 383, Vol. I, 1926.

⁹⁶ See data and references in my *Social Mobility*, Chap. X.

Social Groups	Cephalic Index
Infantry Regiment in Bautzen	
Staff officers	81.4
The chief lieutenants	86.3
Lieutenants	84.4
Volunteers	84.6
Under-officers	84.9
Soldiers	84.6
König Ulanen Regiment in Hanover	
Officers	80.2
Under-officers	82.5
Soldiers	82.4
Liebgarde Cavalry Regiment in Stockholm	
Officers	81.9
Under-officers	79.8
Soldiers	78.9
Recruits in Copenhagen	
The sons of the farmer-owners	81.6
The sons of agricultural laborers	82.0
Recruits in Schwarzbourg	
The sons of the farmer-owners	83.0
The sons of agricultural laborers	81.6
The Pupils of the Real Schools in Dresden	
10 years old	
All	87.1
From the nobility	83.1
11 years old	
All	86.8
From the nobility	87.2
22 years old	
All	83.6
From the nobility	85.4
Technische Hochschule in Dresden	
Full professors	83.2
Associate and assistant professors	83.2
Instructors	83.8
Students	84.0
Recruits generally	85.2
The Pupils of Elementary Schools in Dresden	
Very superior	85.8
Superior	86.4
Average	86.4
Inferior	86.4

social and occupational groups are lacking," are enough to warrant the statement that *the dolichocephalic hypothesis is still a mere belief, and nothing more*

The theories in regard to pigmentation are no better supported. We have seen that, according to Lapouge, the second characteristic of the Aryan or Nordic race is its blondness. Like dolichocephaly, it is supposed to be correlated with energy, talent, and other superior mental qualities. Accordingly, the partizans of the Aryan or the Nordic race contend that the upper classes of the Western societies and their leaders are more blond than the lower classes and common people. In a recent paper H. Onslow and B. S. Bramwell repeat that "the ruling class has always been fair complexioned", that the word "fair" means "bright and blond", and that blondness is a characteristic of mental and social superiority.⁹⁷ To what extent is this contention true? So far as the collected data show, it is entirely baseless. Let us consider the pigmentation of the upper and lower social classes, putting aside the guesses about the color of past aristocracy or the quite incidental references to the pigmentation of the few historical prominent men (which may be confronted by no less numerous opposite examples) and let us take to factual evidence. The study of Niceforo gives the results in this respect in the table on page 274.⁹⁸ The data contradict completely the criticized theory. The poor children have a higher per cent of fairness than have the wealthy.

Livi found that in Italy, among the poor, mountainous population and the peasants the per cent of light-colored persons was considerably higher than among the city population and the wealthier parts of Italy.⁹⁹ K. Pearson, having studied 1000 Cambridge graduates and 5000 school children, did not find any correlation between pigmentation and intelligence.¹⁰⁰ On the other

⁹⁷ ONSLOW, H., "Fair and Dark," *The Eugenic Review*, Vol. XII, pp. 212-217. BRAMWELL, B. S., "Observations on Racial Characteristics in England," *The Eugenic Review*, 1923, pp. 480-491. Even such an opponent of the exaggerated racial theory as Ripley, admits also the correctness of this theory. See his *The Races of Europe*, pp. 469, 548-550.

⁹⁸ NICEFORO, *op. cit.*, pp. 50-51.

⁹⁹ LIVI, R., report in *Bull. de l'Inst. Intern. de Statist.*, Vol. VIII, pp. 89-92.

¹⁰⁰ PEARSON, K., "On the Relationship of Intelligence," *Biometrika*, Vol. V, p. 139. Mean $r = 0.8$, *Annals of Eugenics*, Vol. I, p. 383.

Age Groups, Years	Per Cent of the Children Who Had Fair Eye-Color		Per Cent of the Children with Fair Hair Color	
	Poor	Wealthy	Poor	Wealthy
7	19	18	26	21
8	18	18	26	20
9	17	17	25	20
10	16	17	24	20
11	16	15	22	18
12	16	15	23	18
13	16 4	14 8	22 1	17 2

hand J Jorger found that among the descendants and the members of such criminal and feeble minded families as the Zero, there have been light-, as well as dark-colored people¹⁰¹ J F Tocher also, in a careful study of the criminals and feeble minded in Scotland, did not find any difference in pigmentation between the inmates of prisons or asylums and the common population, with the exception that the insane exhibited a slight tendency to be lighter eyed and darker-haired than the sane population¹⁰² A study of the old Americans by Dr Aleš Hrdlička showed further that the common opinion in regard to the supposed blondness of the old Americans is also fallacious About 50 per cent of them are midway between the blond and dark haired One-fourth of the males have dark or dark brown hair, and only one out of sixteen males and one out of 145 females are blond-haired¹⁰³ Omitting here other similar studies with the same results,¹⁰⁴ we find in the study of men of genius that, from the standpoint of pigmentation, neither do they support the criticized theory Of

¹⁰¹ JORGER J 'Die Familie Zero,' *Archiv für Rassen und Gesellschafts Biologie*, 1903, pp 494-554

¹⁰² TOCHER The Anthropometrical Characteristics of the Inmates of Asylums in Scotland, *Biometrika* Vol V, p 347

¹⁰³ HRDLIČKA, A Physical Anthropology of the Old Americans, *American Journal of Physical Anthropology*, 1922, No 2 pp 140-141

¹⁰⁴ By H G Kenagy, N D Hursh Carret, Constantin and others See LAIRD, D A, *The Psychology of Selecting Men* 1925 pp 127-31 HURSH, N D M, "A Study of Natio-Racial Mental Differences," *Genetic Psychology Monographs*, May and July, 1926, Chap VIII, CONSTANTIN, A, *Le rôle social de la guerre*, pp 36-39, Paris, 1907

such more or less systematic studies, I know only one,—that of H Ellis. The results obtained by this man in his study of British men of genius are as follows

Of 424 British men of genius,

71 were unpigmented (light)

99 were light medium

54 were doubtful medium

85 were dark medium

115 were dark fully¹⁰⁵

These figures refute the alleged blondness of British geniuses. More detailed data given by H Ellis further confirm my criticism. Taking 100 as the index of the mean fairness, all indexes above 100 as the indication of a greater blondness, and all figures below 100 as the indication of an increasing darkness, we have the following table.¹⁰⁶

Categories of British Men of Genius	Number of Men	Index of Pigmentation
Political reformers and agitators	20	233
Sailors	45	150
Men of science	53	121
Soldiers	142	113
Artists	74	111
Poets	56	107
Royal family	66	107
Lawyers	56	107
Created peers and their sons	89	102
Statesmen	53	89
Men and women of letters	87	85
Hereditary aristocracy	149	82
Divines	57	58
Men of genius of low birth	12	50
Explorers	8	33
Actors and actresses	16	3

This shows, first, that the royal family is very far from being

¹⁰⁵ ELLIS, H., *A Study of British Genius* pp 209-210

¹⁰⁶ *Ibid.*, pp 209-216. ELLIS, H., 'The Comparative Ability of the Fair and Dark,' *Monthly Review*, August, 1901

at the top of the list, second that the pigmentation of the hereditary aristocracy is dark, and much darker, than that of the created peers who came out from the middle classes, third, that the statesmen and explorers—the men of energy—were dark. These facts refute completely the one sided interpretation of this table which was given by H. Onslow. The figures do not give any confirmation of the ‘blond theory’ and its variations. The above is enough to show that this theory, in spite of its popularity, has no scientific basis.¹⁰⁷

Besides these anthropometric data historical evidence seems to testify against the criticized theory for the Nordic races of Europe were the latest to develop civilization.

Civilization was more precocious in the South of the European continent than in the North and of all the people of Europe it was the population of North Europe and of the Baltic sea coast which remained the most retarded in regard to intellectual culture. Therefore it is absurd to pretend that the Nordics were responsible for the creation and promotion of culture in the remotest past. On the contrary their invasions everywhere caused either stagnation or regress of development.

The cultivation of plants the domestication of animals, and the use of bronze and metals were all developed long ago, since the neolithic epoch. The same is true in regard to many other fundamental inventions and discoveries in technique and religion, in *mores* and in social institutions.¹⁰⁸ For these reasons, it is impossible to pretend that the blond tall and dolichocephalic Aryans have alone been the conquerors, the aristocracy, and the bearers of mental superiority and progress.

On the other hand Lapouge seems to underestimate the role and the achievements of the brachycephalic Alpine racial type. Nearer to the truth seems to be Dixon's statement that, ‘If in the history of the race as a whole, the Mediterranean and Caspian (Lapouge's Nordic race) peoples have played a great part, that of the Alpines seems hardly less impressive, and there is not a little reason to believe that only where these types have met and mingled have the highest achievements been attained.’ Accord-

¹⁰⁷ See other data in my *Social Mobility*, Chap. X N. Y., 1927.

¹⁰⁸ Houzé, *op. cit.*, pp. 31–32 see first part of the book, *passim*.

ing to the author just such a blending took place when the Babylonian civilization rose to its climax, and when the Greek and the Roman, the Chinese and the Italian attained great achievements. Though these statements are rather guesses, nevertheless they appear to be nearer to the facts than Lapouge's one sided theory. "To no one race or type (among the Nordic, Mediterranean and the Alpine races) can the palm be assigned, but rather to the product of the blending of those types which seem the most gifted,—the Mediterranean, Caspian and the Alpine." ¹⁰⁹

If this fundamental contention of the criticized theory fails, then many inferences from it, such as the theory of degeneration due to an increase of the cephalic index, such as the explanation of the decay of ancient Rome and Greece through the substitution of the brachycephals for the dolichocephals, such as the negative appreciation of the brachycephalic aristocracy of the democratic societies, and such as the alleged superiority of the blonds, all these popular inferences must fall down also, like a row of dominoes when the first one has been pushed over.

4 *Other Ammon-Lapouge Laws*—Let us now briefly touch the validity of other laws indicated above. As for the *Law of Wealth-Distribution*, the above data have shown that it is not warranted by the facts, since there is no evidence that the wealthy classes are more dolichocephalic than the poor ones. ¹¹⁰

The *Laws of Altitudes and of Distribution of the Cities* are, at their best, illustrative only of local phenomena, and in no way can pretend to be general formulas applied to all places and times.

The *Law of Urban Index*, according to which the population of the cities is more dolichocephalic than that of the surrounding country, is again quite a local phenomenon which cannot pretend to any degree of generality. If in some cities of Germany and France the population of the city happens to be more dolichocephalic, in other cities of the same and of many other countries (England, Italy, Belgium, Spain, Egypt, Grand Duchy of Lux-

¹⁰⁹ DIXON, *op cit*, pp 514-516

¹¹⁰ This "law" by the way is in sharp contradiction with other statements of Lapouge where he slanders the present money-aristocracy as pseudo-aristocracy, as prosperous brachycephals, who, like a plague, devastate and impede the existence and procreation of the dolichocephals. See *Selections sociales*, Chap. XIII, *passim*

emburg, and so on) the situation is the reverse¹¹¹ In this respect the formula of R. LIVI is more correct¹¹² He states that the cities attract their migrants from places far distant, rather than near at hand, and that therefore, where the population surrounding a city is of the dolichocephalic type, the city population will be more brachycephalic, and *vice versa* This shows the fallacy of the discussed law and that of the supposition of "the Law of Migration," according to which the dolichocephals are for some mysterious reason more migratory than the brachycephals The same is true concerning pigmentation The city population is not more blonde, but rather, darker, than the country population The above refutes also "the Law of Concentration of the Dolichocephals and the Law of Stratification" As to the "Law of Urban Elimination," it is not proved either The data in its favor are very scarce Besides, this law introduced by Ammon contradicts other statements of Lapouge, given by him in the chapter concerning Urban Selection Here he contends that the present urban selection is very unfavorable to the procreation of the dolichocephals¹¹³

Finally as to the 'law of a more rapid destruction of the more perfect species' formulated by Lapouge as a universal law,¹¹⁴ I wonder if this law were true, how any evolution of species from the protozoa to *Homo Sapiens*, could have taken place It is even incomprehensible how, under such a law, "the Aryan race" could have appeared If this law is permanent and eternal, it seems that such things could not have happened If they happen, this means that the law is wrong, or rather, that it is not a law at all

¹¹¹ See CRAIG, F. J., 'Anthropometry of Modern Egyptian' *Biometrika*, Vol. VIII pp 72-77 RIPLEY *op cit*, pp 555-559 WISSLER, C., "Distribution of Stature in the U. S.," *Scientific Monthly* 1924 pp 129-144 HOUZÉ, *op cit*, pp 95 et seq BEDDOE, J., 'Sur l'histoire de l'index céphalique dans les Iles Britanniques,' *L'Anthropologie*, 1894 pp 513-529 658-673 PEARSON, K., *The Chances of Death* p 290 LIVI, R., *Anthropometria militaria* Vol I pp 86-91, RETZIUS, G., and FÜRST, *op cit*, Chap IV

¹¹² LIVI, R., "La distribuzione geografica dei caratteri antropologici in Italia," *Rivista Italiana di Sociologia*, II, 1898, fasc IV, HOUZÉ, E., *Les indices céphaliques des Flamands et des Wallons*, Bruxelles, Magden, 1882, VANDERKINDER, L., *Nouvelles recherches sur l'ethnologie de la Belgique*, (concerning pigmentation), Bruxelles, Vander Auwera, 1879

¹¹³ *Selections sociales*, pp 407-409 and *passim*

¹¹⁴ *Selections sociales*, pp 456 *seq*

This cursory analysis shows that little remains of these laws. My criticism does not mean that the authors did not rightly observe the facts from which they inferred their laws but that they gave to their partial and local results a universal character making their generalizations much broader than their material logically and scientifically permitted. Hence the fictitious character of their laws. These remarks are enough to show the fallacies of the Arvan race hypothesis and all the conclusions which have been made from it.

7 VALID PRINCIPLES OF THE SCHOOL

A Does the above criticism mean that there is nothing valuable in the theories of the school? Does it mean that any theory of racial or individual differences is quite wrong? Shall we proclaim that all individuals and races are similar and equal? Shall we deny any importance to the factor of heredity and selection and try to explain everything through environment? I do not think that such an attempt would be any better than the one-sidedness of the racial school. In other words I think that side by side with the shortcomings of this school there are valid statements in its theories.

In the first place the school seems to be right in emphasizing the innate differences between races, social classes and individuals.¹⁵ Whatever characteristic we take for the classification of the races—color, cranial capacity, cephalic indices, nasal index, hair, stature, or what not—we find different varieties among mankind.¹⁶ The same is true in regard to individuals and social classes within the same race. Individuals of the same race are never identical. Social classes of the same society differ considerably in their physical, vital and mental characteristics. As

¹⁵ The terms superiority and inferiority are subjective and their use by the school as well as by many other scientists and scholars, is misleading.

¹⁶ See any classification of races according to one or several of these traits, e.g. the classification of Topinard or of Haddon into Ulotrichi, Cymotrichi, Lenotrichi with the further subclasses, or that of Morcell and Sergi or the classifications of Dixon and Deniker. See HADDON A. C. *The Races of Man* pp. 1-36. MORSELLI *Le razze umane e il sentimento di superiorità etnica* *Rivista Italiana di Sociologia* 1911 pp. 325 et seq. SERGI *Hominidae* 1911. DENIKER, J. *The Races of Man* 1900 Chaps. I-III. DIXON R. B. *The Racial History of Man* 1921.

a general rule, the upper classes, compared with the lower ones, have a greater stature, a greater weight, greater size of head, or cranial capacity, or weight of brain. Vitality, they have a longer duration of life, lower mortality, and generally, better health.¹¹⁷ This does not mean that each member of the upper class exhibits these characteristics when compared with any member of the lower class, it means only that such results are obtained when we compare the upper classes as a whole with the lower ones as a whole. Accordingly differences amount to nothing but those of statistical averages which does not prevent the existence of a great deal of overlapping and cases where the member of an upper class may happen to have a lower stature, smaller cranial capacity and poorer health than a member of the lower classes. The same is true in regard to the racial differences in the physical and the vital as well as in the intellectual characteristics. If a part of these and other differences of various races and various social classes are due no doubt to differences in their environment it seems to be certain that another part of them is due to the factor of innate heterogeneity or heredity, or to a selected group.¹¹⁸

B In the second place the school is right in its emphasis on mental and psychological traits, for individuals, the upper and the lower classes and various racial groups, as groups, exhibit considerable differences. In regard to individuals, the existence of differences in native intelligence, 'will power,' sensitivity, temperament emotionality and so on, can scarcely be questioned. It is manifested by common observation, by mental tests, by differences in achievements by experiments, and by many other means. Individuals may range from idiocy to genius of the first degree, from the highly temperamental to the temperamentalless, from a man with great will power and resourcefulness to a man who is continually wavering. The same is true in regard to other psychical traits. The different social strata of the same society exhibit also in their averages considerable differences in intelligence, and in some other traits. Whether we take the

¹¹⁷ See the data and the literature in my *Social Mobility* Chaps. X, XI, XII.

¹¹⁸ See an analysis of the problem in *Social Mobility* Chap. XIII, *et seq.*, *passim*.

number (absolute and relative per thousand of population in each class) of men of genius yielded by the upper and the lower classes in England, Russia, Germany, the United States of America, and France, the proportion given by the upper classes is many times higher than that given by the lower classes, especially by common labor. If we take the data of mental testing and the corresponding I Q, the results are similar. The I Q of both the children and the adults of the upper classes is generally higher than that of the children and the adults of the lower classes. There are overlappings, but they do not disprove the general rule. This means that the mental and social distribution of individuals is positively correlated. I shall give here only a few representative data which show this.

Among present European societies, the most "fertile" social group in the production of the men of genius seems to have been the royal families. The same families are at the apex of the social pyramid. Investigations of F. Adams Woods have shown that for about 800 individuals in this class, we have about 25 geniuses. "The royal bred considered as a unit, is superior to any other one family, be it that of noble or commoner."¹¹⁹ Granting that the data of Dr. Woods are greatly exaggerated, we still have a more abundant crop of men of genius from the royal families, than has been produced by any other social group. H. Ellis' study of the most prominent British men of genius has shown that the English upper and professional classes (composing only 4.46 per cent of the population) have produced 63 per cent of the men of genius, while the labor, artisan and industrial classes, composing about 84 per cent of the population have produced only 11.7 per cent of the greatest leaders of Great Britain. Especially low is the percentage of British men of genius produced by common labor and artisans—2.5 per cent from 74.28 of the total population. The figures include all British men of genius since the beginning of the history of England up to the twentieth century. During the nineteenth century, according to

¹¹⁹ WOODS, FREDERICK A., *Mental and Moral Heredity in Royalty*, p. 301, N. Y., 1906. See also his *The Influence of Monarchs*, Chap. XVII, N. Y., 1913. See also SOROKIN, P., 'Monarchs and Rulers,' *Social Forces*, 1925-6.

A H H MacLean's Study of 2500 Eminent British Men of the nineteenth century, the share of aristocracy during this period rather increased (26 per cent of all leaders, instead of 18.5 per cent), the share of the professions increased also (49 per cent instead of 44.5 per cent), while the share of the labor class and the artisans decreased, in spite of an increased literacy and greater educational facilities for the lower classes in the nineteenth century.¹²⁰ According to the more detailed study of F A Woods, during the first quarter of the nineteenth century the artisans and labor class produced only 7.2 per cent of the men of genius in England instead of 11.7 per cent as during the preceding centuries and during the second quarter of the nineteenth century, only 4.2 per cent.¹²¹ Thus, in spite of an increase of educational facilities the great mass of the British population was, and still is, more than ever before sterile in the production of geniuses. Similar results were yielded by Galton's study of 107 of the most prominent British scientists of the nineteenth century.¹²² Similar results have been obtained in France regarding all the prominent French men of letters. The corresponding figures obtained by Odin in his careful study show the following number of prominent men in their ratio to the same number of the population of various classes. The nobility (159) produced two and one half times more literary geniuses in France than did the high magistrature (62) six and one half times more than the liberal professions (24) twenty three times more than the *bourgeoisie* (7) and two hundred times more than the labor classes (8).¹²³ Classified according to different periods the percentage of literary genius produced by different classes is shown in the following table.

The decrease of the share of nobility in 1775-1800 is a result of its extermination in the French Revolution. Nevertheless, in the period of from 1800 to 1825 it shows again an increase of fertility in the production of genius. Similar results were

¹²⁰ ELLIS, H., *op cit* pp 80 ff.

¹²¹ WOODS F A. 'The Confiscation of Social Groups' *Eugenics, Genetics and the Family* Vol I pp 312-328, Baltimore 1923.

¹²² GALTON, F., *English Men of Science* p 16 Appleton, N Y 1875.

¹²³ ODIN A., *Génèse des grands hommes* Vol. II Table XXXII Vol I, p 541, Paris 1895.

Social Classes	Periods				
	1700-1725	1725-1750	1750-1775	1775-1800	1800-1825
Nobility	31 0	26 7	20 6	13 6	18 3
High magistrature	50 0	52 6	50 0	54 9	53 1
Bourgeoisie	7 1	10 35	18 5	18 6	15 2
Labor class	11 9	10 35	10 9	12 9	13 4
Total	100	100	100	100	100

obtained by de Candolle in his study of the illustrious men of science¹²⁴

Dr Fritz Maas studied 4421 of the most prominent German men of genius in various fields of activity (writers, poets, painters, composers, scientists, scholars, artists, pedagogues, statesmen, captains of industry and finance, military men, and so on) who were born after 1700 and died before 1910. His study shows that the higher classes (nobility, professions, and the wealthy class of the big manufacturers and merchants), who have composed less than 20 per cent of the total population, produced 83.2 per cent of the men of genius, while the lower labor classes, which composed more than 80 per cent of the total population, have yielded only 16.8 per cent of the German leaders. Especially small has been the relative share of the proletariat, in spite of the rather large size of this class in the second half of the nineteenth, and at the beginning of the twentieth century. The percentage of the men of genius coming out of this class has been only 0.3 per cent. Again, in spite of the increase in educational facilities for the lower classes during the nineteenth century, these classes do not show any marked increase in their productivity of geniuses. This is seen from the following data¹²⁵

¹²⁴ DE CANDOLLE, A., *Histoire des sciences et des savants*, pp. 272-274, 279, Genève, Bale, 1885.

¹²⁵ MAAS, FRITZ, "Ueber die Herkunftsbedingungen der Geistigen Führer," *Archiv für Sozialwissenschaft und Sozialpolitik*, 10:6, pp. 144-186.

Social Classes from which the Men of Genius Came	Per Cent of Genius from Each Class in the Specified Historical Periods According to the Year of Birth		
	1700-1789	1789-1818	1818-1860
Nobility	19 2	14 2	11 0
High magistrature and professions	53 3	55 8	60 0
Bourgeoisie (commercial class)	15 3	16 4	16 4
Labor classes	11 9	13 6	12 4

According to the data of Professor J McK Cattell, the share of different classes from which the leading American men of science came and the proportion of these classes in the total population of the U S were as follows

Social Classes	Per Cent of Leading Men of Science from Each Class	Per Cent of the Class in the Total Population of United States
Professions	43 1	3 1
Manufacturing and trade	35 7	34 1
Agricultural class	21 2	44 1

The majority of the leading scientists came from the upper and middle classes and not a single one was produced by the group of domestic servants or by the class of day laborers¹²⁶

Dr S Visser studied the occupation of the fathers of 18,400 of the prominent Americans from *Who's Who* with the following results¹²⁷

¹²⁶ CATTELL, J McKEEN, *American Men of Science*, 3d ed, 1921, pp 783-784

¹²⁷ VISSER, STEPHEN S, "A Study of the Type of the Place of Birth and of the Occupation of Fathers of Subjects of Sketches in *Who's Who* in America," *The American Journal of Sociology*, p 553 March 1925

Social Classes	Persons in Each Class per Notable	Notable Men per 10 000 Persons in Each Class
Laborers, unskilled	75 000	0 013
Laborers, skilled and semi skilled	2 470	4
Farmers	1 100	9
Businessmen	124	80
Professions (except clergy)	70	142
Clergy	32	315

Dr. E. L. Clarke, in his study of 1000 of the most prominent American men of letters, came to the following results ¹²⁸

Social Class from Which Men of Letters Came	Number of Men of Letters from Each Class
Professional	328
Commercial	151
Agricultural	139
Mechanical, clerical unskilled	48
Unknown	334
Total	1000

Again the same picture—a numerically insignificant part of the total population—the professional and commercial classes—produced more than 60 per cent of all prominent men of letters in the United States.

My study of 476 American captains of industry and finance showed that 79.8 per cent of these leaders were produced by the commercial and professional classes, 15.6 per cent by farmers, and only 4.6 per cent by the skilled and unskilled labor class ¹²⁹. Here again, the share of the labor class in the production of the geniuses of industry and finance is not increasing but decreasing.

¹²⁸ CLARKE, EDWIN L., *American Men of Letters*, Columbia Univ. Studies, Vol. LXXII, 1916, pp. 74-76.

¹²⁹ SOROKIN, "American Millionaires," *Social Forces*, 1925, pp. 635-636.

Similar results were obtained by Ch H Cooley Dr Cooley's study of 71 of the most prominent poets, philosophers, and historians of all times and countries has shown that 45 of them came from the upper and upper middle classes, 24 from the lower middle class, and only 2 from the labor classes¹³⁰ Dr L Terman quite recently came to a similar conclusion The brightest children (with an average I Q of 151.33) studied by Terman and his collaborators happened to come from the following social groups

Occupation of Fathers of Gifted Children	Proportion among Fathers of Gifted Children	Proportion of Each Occupational Group in Population of Los Angeles and San Francisco
Professional	29.1	2.9
Public service	4.5	3.3
Commercial	46.2	36.1
Industrial	20.2	57.7
Total	100.0	100.0

PER CENT OF QUOTA OF EACH OCCUPATIONAL GROUP AMONG FATHERS OF GIFTED CHILDREN

Professional	1,003
Public service	137
Commercial	128
Industrial	35

In the industrial group only one man gives his occupation as "laborer" which is 0.2 per cent of our fathers as compared with 15.0 per cent of the total population classified as laborers in the census report¹³¹

Jur Philpitschenko's study of the contemporary Russian scien-

¹³⁰ COOLEY, CH H, 'Genius, Fame and the Companions of Races,' *Annals of American Academy*, Vol. IX p 15, May, 1897

¹³¹ TERMAN, L., *Genetic Study of Genius*, Vol. I, pp 60 ff

tists, scholars and representatives of the arts and literature gave the following results ¹³²

Occupation of Fathers	Per Cent of Scientists and Scholars from Each Class	Per Cent of Representatives of Arts and Literature from Each Class	Per Cent of Great Contemporary Scientists and Scholars from Each Class	Per Cent of Greatest Scientists and Scholars — Members of Academy of Science for Last Eighty Years
Professions	36	44 6	46	30 2
Officials	18 2	20 0	8 0	15 5
Military	9 4	7 7	14 0	16 2
Clergy	8 8	1 8	10 0	14 8
Commercial	13 0	6 7	12 0	5 6
Agricultural	7 9*	9 6*	6 0*	14 1*
Skilled and unskilled labor	2 7	9 6	4	3 5*
Not known	4 0			0 1
Total	100 0	100 0	100 0	100 0

* Including the landlords and gentry

* Only the landlords and gentry

* Including peasants

The labor classes (agricultural and labor) compose even in contemporary Russia more than 90 per cent of the population, and yet they yielded quite an insignificant percentage of the scientists and scholars, artists, literary men and so on. This percentage is still less among the great men of science.

I will not give other data obtained by different investigators in different countries ¹³³. They only confirm the above results. Passing from the bottom of a social pyramid to its apex we see a systematic increase of the number of men of genius—an absolute, as well as a relative increase.

Similar results have been obtained by the intelligence testing of various social groups. The general conclusion suggested by

¹³² PHILIPTSCHENKO, *Bulletin of The Bureau of Eugenics* (Russ.), Bull. No. 1, pp. 11-12, 28, No. 2, pp. 11-12, No. 3, p. 35.

¹³³ See SOROKIN, P., *Social Mobility*, Chap. XII.

numerous intelligence tests is that the higher social classes are more intelligent than the lower ones. Of many data of this kind, I will mention here only a few which are representative. Other figures may be found in the sources indicated in footnotes and in my *Social Mobility*.

In the first place, we have the results of the intelligence tests given the U S Army. The I Q of various social groups obtained by this study is as follows ¹³⁴

Occupation	I Q	Occupation	I Q
Civil engineers	274	Bakers and cooks	106
Lawyers and teachers	252	Printers	99
Chemists	205	Carpenters	91
Postal employees	200	Metal workers	88
Artists	198	Leather workers	88
Clerks	175	Horsemen	75
Salesmen	170	Teamsters	72
Merchants	138	Barbers	65
Policemen	119	Laborers	63
Machinists	107		

These data show a rather close correlation between social status and intelligence. Unskilled and semi skilled laborers have a very inferior and low average intelligence, skilled labor groups are principally in the group of 'high average' intelligence, superior and very superior intelligences are found only in the high professional and high business classes. On the other hand, it is necessary to mention that the testing disclosed a considerable overlapping in the intelligence of different social groups. This, however, does not disprove the indicated fact of the existence of superior intelligence in the higher social strata and inferior intelligence in the lower strata ¹³⁵

¹³⁴ *Memoirs of the National Academy of Science*, Vol. XV, Wash., 1921, pp. 821 ff., Chap. XVII. See also YERKES R. M., "Eugenic Bearing of Measurement of Intelligence," *The Eug. Review*, pp. 234 ff., January, 1923. See here the instructive figures and diagrams.

¹³⁵ See the details concerning the results of the U S Army mental test in the works indicated. See also GODDARD, H. H., *Human Efficiency and Levels of Intelligence*, 1920, pp. 1-30; PINTNER, R., *Intelligence Testing*, *passim* and chapter, "The Soldier and the Employees," and works indicated below.

Other proof of the superior intelligence of the higher social classes is given by the results of *intelligence testing of the children of different social classes*. At the present moment we have very numerous studies of this kind, and their results are almost unanimous in essence. The children of the professional and well to do classes, as a general rule, show a much superior intelligence than the children of the labor classes. The following figures may be taken as representative. According to the study of Dr Terman, the median I Q for the children of the semi-skilled and unskilled labor classes has been 82.5 while the median I Q for the children of the professional and high business classes has been 112.5. The percentage of superior children with I Q 135-140 has been among the studied group, in the professional class, 53, in semi professional, 37, in skilled labor, 10, and in the semi-skilled and unskilled, — 0.¹³⁶

The I Q's of 13,000 children, at the age of 11 and 12 years, studied by J. F. Duff and Godfrey H. Thomson in England, have been as follows (according to the occupation of their fathers)

Occupational Groups	I Q
Professional	112.2
Managers	110.0
Higher commercial class	109.3
Army, navy, police, postmen	105.5
Shopkeeping class	105.0
Engineers	102.9
Foremen	102.7
Building trades	102.0
Metal workers shipbuilders	100.9
Miscellaneous industrial workers	100.6
Mines quarrymen	97.6
Agricultural classes	97.6
Laborers	96.0

While of 597 children from the professions and higher com

¹³⁶ TERMAN, L. M., *The Intelligence of School Children*, 1919 pp. 56 ff., 188 ff.
see also TERMAN, 'New Approach to Study of Genius,' *Psychological Review*, 1922, pp. 310-318

mercial classes 471 were above the average mental level and only 126 below the average among 1214 children from the low grade occupations (laborers) 746 were below and only 468 were above the average mental level¹³⁷

Similar results have been obtained by C Burt H B English Miss A H Arlitt A W Kornhauser Douglas Waples G Sylvester Counts W H Gilby and K Pearson L Isserlis W Stern Holley S Z Pressey and R Ralston J M Bridges and L E Coler W F Book M E Haggerty and H B Nash and others¹³⁸ It is needless to multiply the examples We need merely to say that in the United States Germany England and France almost all child mental tests have given similar results¹³⁹

The next proof of the correlation of social standing and intel

¹³⁷ DUFF J F and THOMSON G H The Social and Geographic Distribution of Intelligence in Northumberland *British Journal of Psychology* pp 192-198 Oct 1923

¹³⁸ BRIDGES J M and COLER L E The Relation of Intelligence to Social Status *Psychological Review* XXIV pp 1-31 BOOK W F *The Intelligence of High School Seniors* Chap X N Y 1922 PRESSEY S Z and RALSTON R 'The Relation of General Intelligence of the Children to the Occupation of their Fathers' *Journal of Applied Psychology* Vol III No 4 HAGGERTY, M E and NASH HARRY B Mental Capacity of Children and Paternal Occupation *The Journal of Educational Psychology* December 1924 pp 563-572 See other facts in the indicated books of Terman and Pintner See also MACDOUGALL W

The Correlation between Native Ability and Social Status *Eugenics in Race and State* Vol II pp 373-376 Baltimore, 1921 ENGLISH H B Mental Capacity of School Children Correlated with Social Status *Yale Psychological Studies* 1917 *Psychological Review Monograph* Vol XXIII No 3 ARLITT A H Summary of Results of Testing 342 Children *Psychological Bulletin* Feb 1921 KORNHAUSER A W The Economic Standing of Parents and the Intelligence of their Children *Journal of Educational Psychology* Vol IX COUNTS G S *The Selective Character of American Secondary School* The U of Chicago Educ Monographs No 19 May 1922 pp 36-37 and *passim* WAPLES D

Indexing the Qualifications of Different Social Groups for an Academic Curriculum, *The School Review* 1924 pp 537-546 GILBY W H and PEARSON K

On the Significance of the Teacher's Appreciation of General Intelligence, *Biometrika* Vol. VIII pp 94-108 HOLLEY CH E *The Relationship between Persistence in School and Home Conditions* U of Chicago Press 1916 *passim* ISSERLIS L The Relation between Home Conditions and the Intelligence of School Children London 1923 *Publications of the Medical Research Committee of the Privy Council* YATES A Study of some H S Seniors of Super Intelligence *Journal of Educ Research* Monos No 2 STERN W *Die Intelligenz der Kinder und Jugendlichen* Barth Leipzig HART H Occupational Differential Fecondity *Scientific Monthly* Vol XIX p 531 DEXTER E Relation between Occupation of Parents and Intelligence of Children *School and Society* Vol XXVI (1923) pp 612-616 MURDOCH K A Study of Differences Found Between Races in Intellect and Morality *School and Society* Vol XXII 1925 No 568-569

¹³⁹ See other data in my *Social Mobility*

lectual level is given by mental tests of the intelligence of the adults of different social standing. They also yielded results similar to the above. (See *Social Mobility* Chap. XII.)

As to an interpretation of these results, opinions differ nevertheless, even those among the investigators who are inclined to account for these differences through the factor of environment do not deny completely the role of heredity and selection. An attentive study of the data makes it reasonably certain that the differences are due to environment, as well as to heredity. At any rate the series of facts could, in no way, be accounted for through the environmental agencies alone.¹⁴⁰ This means that the school's contention about the selected character of each of these classes has a great deal of truth. On the other hand if it is fallacious to deny the role of heredity and selection in the creation of these differences, it is equally wrong to deny the role of environment in this field. The school seems to underestimate somewhat the importance of the environmental factor and needs to be corrected in this point.

C. The school seems to be right also in its claim that racial groups are different physically and mentally. In regard to the existence of physical differences among various races there is scarcely any doubt. The divergency of opinions concerns not the existence of these differences, but their significance as a basis for race classification and its history. Whatever the classification may be, the existence of different zoological racial types can not be questioned. As an example of one of the best classifications of races, I give the following table of Professor Dixon.¹⁴¹ That there are mental differences among races seems also to be definitely established, whether due to environment or to heredity, we find considerable mental differences between the principal racial (not national) groups. Their existence is witnessed in the first place by the quite different part which has been played by the various races in the history of mankind and in their cultural achievements. Though almost all of these types have been given an opportunity to create the complex forms of civilization, and

¹⁴⁰ See *Social Mobility* Chap. XIII.

¹⁴¹ Dixon *op. cit.*, p. 500. see here description of each of these types.

CHARACTER OF THE EIGHT PRIMARY RACIAL TYPES

Types	Head	Face	Nose	Prognatism	Cranial Capacity
Proto-Australoid	Long Low	Medium Broad	Broad	Moderate	Small
Proto-Negroid	Long High	Medium Broad	Broad	Moderate	Small
Mediterranean	Long Low	Narrow	Narrow	None	Large
Caspian	Long High	Narrow	Narrow	None	Large
Mongoloid	Round Low	Broad	Broad	Moderate	Medium
Paleo-Alpine	Round High	Broad	Broad	Moderate	Medium
Ural	Round Low	Medium	Narrow	None	Largest
Alpine	Round Low	Medium	Narrow	None	Largest

an almost unlimited span of time nevertheless the role of the Proto Australoid and Proto Negroid races has been very modest in this respect while the role of the Caspian the Alpine and the Mediterranean races has been extraordinarily great They have been the leaders in the creation of a complex form of culture They have been the conquerors and subjugators of almost all the other races driving them out and spreading themselves throughout the world The essence of Gobineau's deduction in this respect seems to be true Professor Dixon says that there is a difference between the fundamental human types in quality, in intellectual capacity in moral fibre and in all that makes or has made any people great This I believe to be true despite what

advocates of the uniformity of man may say "¹⁴² No partizan of a belief in the uniformity of all races can disregard the discussed differences in the historical role and in the cultural achievements of different races. They used to say that this was due to different racial environments, but we have already seen that it is impossible to give exclusive importance to geographical environment in this respect. In the second place, the geographical environment of almost all of the races has been different because each racial type has been spread over the vast areas of the earth with very different geographical conditions. In the third place, nobody has shown as yet that the natural environment of the Caspian or the Alpine races has been more favorable than that of the Proto Negroids or Proto Australoids. If the social environment of various races has happened to be different, this difference did not fall from heaven, but has been due to the fact that some of them have been able to create a complex social environment, while others have not been able to do so.

The difference in the cultural contributions and in the historical roles played by different races is excellently corroborated by, and is in perfect agreement with, the experimental studies of race mentality and psychology. The more perfect the technique of such a study becomes, the more clear and unquestionable become the mental differences among different races. Fortunately science has already passed the speculative stage in this field and has entered the stage of factual study, which has led to many interesting results. I have just mentioned that the historical role of the Proto Negroids and the Proto Australoids has been very mediocre, — that their contributions to what we style complex culture and civilization have been very moderate. Is this testimony of history corroborated by mental tests? I should say that the verification has been complete. So far as I know, all studies of the comparative intelligence of the contemporary negro and white races (the Caspian, the Mediterranean, the Alpine, and even in their blends with the yellow race) have unanimously shown that the I Q of the blacks, or even of the Indians is lower than

¹⁴² Dixon, *op cit*, p 518, see *passim*. The term "great" is evaluative. Whether the creation of complex forms of civilization is a good or a bad, a great or negative achievement, the fact of a different rôle for various races remains, regardless of any evaluation.

that of the white or the yellow. It is true that the difference is not so great as the school claims and it is also true that there are individual exceptions but they by no means disprove the rule. Below are a few representative figures of many available at the present time.¹⁴³

MEDIAN OF MENTAL AGES BY OCCUPATION

Occupation	White	Negro
U S Army		
Farmers	9.5	8.2
Laborers	9.5	9.0
Miners	10.2	9.1

GENERAL INTELLIGENCE OF THE WHITE AND THE NEGRO DRAFT
PERCENTAGES MAKING THE GRADE

	D	D	C -	C	C +	B	A
White	7	17.1	23.8	25	15	8	4.1
Negro	49	29.7	12.9	5.7	2.0	0.6	0.1

¹⁴² *Memoirs of the National Academy of Sciences* Vol XV pp 796-797 Wash 1921. Grades D - D C C C + B A indicate a passing from the lowest I Q - border line and dull - to the highest - bright and brilliant.

¹⁴³ FERGUSON G O *The Intelligence of Negroes* Virginia School and Society 1919 Vol IX pp 721-726. 'The Mental Status of the American Negro' *Scientific Monthly* Vol XII p 533 June 1921.

¹⁴⁴ TRABLE M R 'The Intelligence of Negro Recruits,' *Natural History* 1919 Vol XIX pp 680-685.

¹⁴⁵ YERKES R M 'Psychological Examination in the U S Army' *Memoirs National Academy* Wash Vol XV 1921.

¹⁴⁶ PINTNER R and KELLER R 'Intelligence Testing of Foreign Children,' *Journal of Educational Psychology* 1922 Vol XII pp 214-222.

¹⁴⁷ THORNDIKE E L 'Intelligence Scores of Colored Pupils' *School and Society* 1923 Vol XVIII pp 563-570.

¹⁴⁸ MITCHELL I ROSANOFF I R and A J 'A Study of Association in Negro Children' *Psychological Review* 1919 Vol XXVI pp 354-359.

¹⁴⁹ HIRSH N D 'A Study of National Racial Mental Differences' *Genetic Psychology Monographs* 1926 May July p 287.

¹⁵⁰ PETERSON J 'Comparison of White and Negro Children in Multiple Choice in Learning' *Proceedings Amer Psychol Assn* 1921 pp 97-98. 'The Comparative Abilities of White and Negro Children' *Comparative Psychology Monographs* 1923 No 5.

Investigators	Race	Number of Cases	Year	Results
Ferguson ^{144*}	Mulattoes Negroes White draft	2288 155 —	1919	Negroes inferior mentally to the whites. Among mulattoes the superior are those having the greatest percentage of white blood.
Trabue ^{145*}	Negroes	8244	1919	Whites are superior to the negroes.
Yerkes ^{146*}	Negroes (U S Army) Whites		1921	Negro mental age 10.4 years that of the whites 13.1 years. The percentage of the very inferior among the negroes is higher while the very superior are much scarcer.
Pintner ^{147*} Keller	Negroes Whites	71 249	1922	Negro I Q 88 white I Q 95
Thorndike ^{148*}	Negroes Whites	349 2653	1923	4 per cent of the negroes reach the median of the whites. Percentage of negroes with a superior I Q is very small, compared with the whites.
Mitchell ^{149*} Rosanoff	Negroes Whites	300 300	1919	The negro is far behind the white mental age.
Hirsh ^{150*}	Negroes Whites	449 5055	1926	Negro I Q 84.6 all whites of different stocks, with the exception of the Portuguese have higher I Q from 85.3 to 102.8.
Peterson ^{151*}	Negroes Whites	315 311	1921	80-95 per cent of the whites surpass the intelligence of the negroes. The greater the proportion of white blood in a negro the higher is his mental score.

* For footnotes see preceding page

Investigators	Race	Number of Cases	Year	Results
McFadden Dashell ¹²²	Negroes Whites	77 77	1923	Whites have stronger personality Only 15.4 per cent of the negroes exceed the median of the whites
Brigham ¹²³	Negroes Whites (U S Army)		1923	Results similar to those of Yerkes
Sunne ¹²⁴	Negroes Whites	1112 5834	1923	Mental age of negro 1-1½ years below whites
Pressey Teter ¹²⁵	Negroes Whites	187 1022	1919	Negro's mental age two years behind that of the whites
Arlitt ¹²⁶	Negroes Whites	71 191	1921	Negro's I Q, 83 white's, 106 Besides, the I Q in negroes decreases with age and rapidly falls below that of the whites
Derrick ¹²⁷	Negro and white college students	52 (N) 75 (W)	1920	Negro's I Q, 103 white's, 112
Schwegler Winn ¹²⁸	Negro	58	1920	Negro's I Q, 89 white's, 103
Murdock ¹²⁹	Negro White	225 514	1920	White 85 per cent better than the negro
Pyle ¹³⁰	Negro	738	1925	Negro scores in comparison with white scores taken as 100, are in Manthan's meter test 78, in substitution, 44, in rote memory, 68 5, and in logical memory, 80 3

¹²² MCFADDEN and DASHIELL, J F "Racial Differences as Measured by the Dawney Will Temp Ind. Test," *Journal of Applied Psychology*, 1922, Vol VII, pp 30-53

¹²³ BRIGHAM, C C, *A Study of American Intelligence*, Princeton, 1923

¹²⁴ SUNNE, D, "A Comparison of White and Negro Children," *School and Society*, 1924, Vol XIX, pp 469-472

For the sake of brevity, instead of giving the detailed characteristic of the results of these studies, I have tabulated their principal results, with the methods employed in testing, referring to the indicated studies for the details

There is no use to continue this list ¹⁸¹ The above shows that practically without any exception, in spite of the different methods used in the studies, the results were unanimous They all show that the I Q of the negro is comparatively lower than that of the white race They are in perfect agreement with the historical data indicated above If we take the number of men of genius yielded by a race as a criterion of its mentality, the results will also be unfavorable for the negro race, for it has been rather sterile in this respect Finally, it is worthy of notice that the studies of Ferguson, E B Reuter, and of some others, have shown that the greater the infusion of white blood into the negro, the higher is his intelligence quotient We have here, as well as in Hunter's study of the Indians, a partial corroboration of Gobineau's statement that the negro and other "inferior" races show intellectual ability only in proportion to their percentage of white blood

This perfect agreement of all these tests the historico-cultural, the mental, the absence of geniuses, especially of the highest rank,

¹⁸¹ PRESSEY, S Z, and TETER, G P, 'A Comparison of Colored and White Children, etc,' *Journal Applied Psychology* 1919, Vol III, pp 277-282

¹⁸² ARLITT, A H, "The Relation of Intelligence to Age in Negro Children," *Proc 30th Ann Meet Am Psy Assn*, 1921, 14 "The Need of Caution in Establishing Race Norms," *Journal Applied Psychology*, 1921 Vol V pp 179-183

¹⁸³ DERRICK, S M, 'A Comparative Study of Seventy Five White and Fifty-Two Colored College Students,' *Journal Applied Psychology* 1920 Vol IV, pp 316-329

¹⁸⁴ SCHWEGLER, R A, and WINN, E, 'A Comparative Study of the Intelligence of White and Colored Children,' *Journal Educational Research*, 1920, Vol II, pp 838-848

¹⁸⁵ MURDOCK, M, "Study of Race Differences in N Y City," *School and Society*, 1920, Vol XI, pp 147-150 "A Study of Mental Differences that are Due to Race" *Proc of 32d Ann Meet of Am Psych Assn*, 1923, pp 108-109

¹⁸⁶ PYLE, W H, *Nature and Development of Learning Capacity*, p 93, Baltimore, 1925

¹⁸⁷ See also ODUM, H W, *Social and Mental Traits of the Negro*, (shows that the per cent of feeble-minded among negroes is higher than among whites) TERMAN, L, *Genetic Studies of Genius*, 1925 Vol I, pp 56-57 STRONG, A C, "Three Hundred Forty White and Colored Children," *Ped Sem*, Vol. XX, pp 485-515 REUTER, E B, "The Superiority of the Mulatto," *American Journal Sociology*, 1917, Vol XXIII, pp 83-106

and the "superiority" of the mulattoes, seems to indicate strongly (especially together with the further data concerning other races) that the cause of such a difference in the negro is due not only, and possibly not so much to environment, as to heredity¹⁶² For a corroboration of their thesis, the partizans of one sided environmentalism have been able to give nothing but speculation and reasoning This evidently is too little to make their position valid

From the standpoints of cultural achievements, the results of mental tests, the number of geniuses produced, and the "superiority" of half breed Indians over full blood Indians, the red race makes a somewhat better showing than the negro, but one which is, nevertheless, "inferior" to that of the whites The results of these four tests are again in complete agreement with one another It is enough to give merely the results of the mental tests, because of the lack of Indian cultural achievements, their backwardness, and their very low number of geniuses (if any)

From the same standpoint, it is interesting to take such racial varieties as the Chinese, Japanese, and the Hindus of the higher and the lower caste and to ascertain to what extent the data of the historico-cultural achievements agree with the gradings of the mental tests We know that these peoples have, in the past, and

¹⁶² References to environment are not convincing because if in the present and past in America the environment of the negro has been less favorable, in Africa they had as many chances in the long course of history to create complex forms of culture as the white race had elsewhere and yet nothing has been created Further, none of the environmentalists has shown that in this long course of race history the geographical environment of the negro has been less favorable than that of the white race Finally in several of the mentioned experimental studies, the economic, occupational and social status of the white and the negro has been taken into consideration and attempts have been made to study the white and the negro in the same status and environment (studies of Arlitt Hirsch and others), but the result has been the same The negro has been 'inferior' when compared with the white in the majority of the studied mental functions Finally, the environment of either the Russian peasantry before the annihilation of serfdom, or of the mediæval serfs, or of the Roman and the Greek slaves was probably not any better if indeed it was not worse than the environment of the American negro before 1861 or at the present moment Yet these slaves and serfs of the white race, in spite of their environment yielded a considerable number of geniuses of the first degree, not to mention the eminent people of a smaller caliber Meanwhile, excepting, perhaps a few heavyweight champions and eminent singers, the American negroes have not up to this time produced a single genius of great caliber These considerations and facts seem to point at the factor of heredity, without which all these phenomena cannot be accounted for

Investigator	Race	Number of Cases	Year	Results
Garth ¹⁸³	Indians	190	1919	Negroes fatigue most Indians least Mixed bloods excel in mental test, over full bloods by 11 per cent Full bloods excel mixed-bloods in resisting mental fatigue Nomads excel sedentary Indians in resisting mental fatigue Indian mixed bloods have higher intelligence scores than full bloods
	Negroes	133	1920	
	Whites	711		
	Mixed blooded Indians	215	1921	
	Full blooded Indians	165	1922	
	Mixed blooded Indians	82	1923	
	Full blooded Indians	108	1923	
	Nomadic Indians	108	1922	
	Sedentary Indians	121	1922	
	Full blooded Indians	559	1922	
Hunter and Sommermer ¹⁸⁴	Indian mixed and full bloods	715	1921	
Pyle ¹⁸⁵	Indians	500	1925	The Indian I Q is inferior to that of the white Mixed Indians made a better scoring in mental tests than full bloods The greater the proportion of white blood the higher the grading Correlation of .41 between degrees of white and Indian blood
	Negroes	758		
	Chinese	424		

¹⁸³ GARTH, T. R., "Racial Differences in Mental Fatigue," *Journal Applied Psychology*, 1919 pp 235-244, "White, Indian and Negro Work Curves," *Journal Applied Psychology*, 1920, pp 14-25, "A Review of Racial Psychology," *Psychological Bulletin*, 1925, pp 355-357

¹⁸⁴ HUNTER, W. S., and SOMMERMER, E., "The Relation of Degree of Indian Blood to Score on the Otis Int. Test," *Psychological Bulletin*, 1921, Vol. XVIII, pp 91-92

¹⁸⁵ PYLE, W. H., *op cit*, p 96

partly, even in the present, created a few of the most brilliant civilizations. In their political and military history they have created world empires. They have yielded a considerable number of the great geniuses in different fields of mental and social activity. For this reason if this test and the mental tests are adequate, we must expect that their intelligence would be almost as high as that of the white race of which they are a blended variety. Results of the mental tests seem to corroborate this expectation.¹⁶⁶ The study of Pyle, and the investigations of K. Murdoch, Wolcott, K. T. Yeung, Symonds, and Porteus¹⁶⁷ have shown that their intelligence is either as high as the intelligence of the American and Anglo-Saxon whites, or is only a little lower, which may sometimes be explained by negatively selected groups of these peoples. They have also been found very high in the tests of morality, and sometimes in school marks. In this case also, we find then that the tests are in agreement. Agreeing with the test of cultural and historical achievement are also the results of the mental tests of the Brahman (high) and the Panchama (lowest) castes in India, who belong to different racial types. The scoring of the Brahman children is only a little lower than that of the American white children of the same age, while the scoring of the Panchama children is considerably lower than that of both these groups. Besides, the Panchama children (as the negro children in some studies) "show no increase in the speed of their performance after the age of twelve. They have attained their

¹⁶⁶ Studies in the physical anthropology of these peoples have shown also that, from the standpoint of cranial capacity, these peoples rank as high as the white peoples. For this reason, many prominent anthropologists and eugenicists give them a very high qualification. See SCHALLMAYER, W., *Vererbung und Auslese*, 1910, Chap. XI. PORTEUS, S. D., and BABCOCK, M., *Temperament and Race*, Part IV, 1926.

¹⁶⁷ See MURDOCH, K., "A Study of the Differences Found between Races in Intellect and in Morality," *School and Soc.*, Vol. XXII, Nos. 568-569, 1925. SYMONDS, P. M., "The Intelligence of the Chinese in Hawaii," *School and Society*, Vol. LXXXIX, p. 442, 1924. WOLCOTT, C. D., "The Intelligence of Chinese Students," *School and Society*, 1920, Vol. XI, pp. 474-480. WALGH, K. T., "A Comparison of Oriental and American Student Intelligence," *Psychological Bulletin*, 1921, Vol. XVIII. YEUNG, K. T., "The Intelligence of Chinese Children," *Journal of Applied Psychology*, 1922, Vol. V, pp. 267-274. YOUNG KIMBALL, "Mental Differences in Certain Immigrant Groups," *Univ. of Oregon Public*, 1922, Vol. I. see also TERMAN, *Genetic Studies of Genius*, Vol. I, pp. 56-57.

full mental growth at this age," while the American and Brahman children continue to show an intelligence growth after this¹⁶⁸

Finally, as to the so-called European nationalities or stocks, it is evident that they (as far as they are taken on the basis of their languages,—Anglo Saxons, Germans, Swedes, Italians, and so on) do not represent racial groups in the zoological sense of the word. Within the same nationality we find different varieties of the white race, and *vice versa*. The same racial variety is spread among various national groups. Therefore, it is comprehensible that the results of the mental tests of these nationalities might be expected to be somewhat contradictory, showing differences that are not so great. These results could be easily accounted for, because all the principal varieties of the white race,—the Nordic, the Alpine, and the Mediterranean—in their cultural history have shown brilliancy and have never been so widely separated as the white and the black races. These expectations are considerably corroborated by the mental tests. The relative place of different European nationalities shifts from study to study, and the relative ranks of each nation are not identical with the ranks of other nationalities in different studies.¹⁶⁹

The only conclusion which it seems possible to make from the above and similar studies is that the mentality of various races, and especially that of the white and the black races (as far as it may be judged by the tests given) is different. I do not say that one race is superior while another is inferior. Such an evaluation is subjective. But I do say that in the discussed respect, their "scores" are different. It is probable that in some other respects the blacks may score somewhat higher than the whites. But such a fact, if it is shown, would mean only that their difference is still greater and more many sided. This means that the school is right as far as it maintains these differences in

¹⁶⁸ See HERRICK, D. S., 'A Comparison of Brahman and Panchama Children in South India,' etc., *Journal of Applied Psychology* 1921 Vol V pp 252-260. See also WAUGH, K. T., *op cit* PORTEUS and BABCOCK *op cit*, Parts V VI.

¹⁶⁹ See the above quoted works. Besides, see the studies of BROWN, G. L., 'Intelligence as Related to Nationality,' *Journal of Educational Research* 1922, Vol. V, pp 324-327. FEINGOLD, G. A., *Intelligence of the First Generation of Immigrant Groups*, *Journal of Educational Psychology* 1924, Vol XV pp 65-83. PINTNER, R., *Intelligence Testing*, N. Y., 1923. YOUNG, K., *Intelligence Tests of Certain Immigrant Groups*, *Scientific Monthly*, 1924.

various racial types, but that it is wrong in its exaggeration of them. As we have seen, they are considerably less conspicuous than the school contends. The difference between the upper and the lower classes of the same race is rather greater than that even of the white and the black races. The school is wrong also in so far as it finds in these differences the characteristics of "superiority" and "inferiority." In view of the subjectivity of these terms, it is possible to contend with an equal right, that, for instance, an ability to abstain from the creation of a complex civilization is a trait of "superiority," while such a creation is a symptom of "perversion." From the standpoint of such criteria, the negro race would be "superior," while the white race would be "inferior." If we drop such evaluations, the above racial differences are as indicative of "superiority" as are the opposite ones.

The task of a science is not to evaluate, but to find the facts—in this case to find out whether or not the races are different, and, if they are, exactly what these differences are. The above survey answers the problem positively and shows the nature of the dissimilarities. This is all which is relevant from a scientific viewpoint.¹⁷⁰ Evaluations are to be left to the subjective taste of everyone. So much for this point.

D. Further, as I have already mentioned, the school is at least partly right in its contention that these differences are due, not

¹⁷⁰ In spite of a commendable cautiousness several careful authors, like E. B. Reuter in his valuable study, go to the opposite extreme and beyond the facts known when they state that "all scholars accept as a provisional but fairly well founded working hypothesis the position that the various races and peoples of the world are essentially equal in mental ability and capacity for civilization." REUTER, E. B., *The American Race Problem: A Study of the Negro*, pp. 95-96, 429. This statement is quite fallacious from the factual standpoint: the majority of the specialists do not recognize that "the various races and peoples of the world are essentially equal in mental ability and capacity for civilization." The statements contradict even the author's own statements that "there is a very considerable body of apparently unbiased scientific opinion on the side of Negro inferiority. And there are no competent students of racial matters who dogmatically assert an absolute racial mental equality." *Ibid.* p. 92. This statement is much nearer to the truth than the preceding one of the same author. Putting aside "superiority" and "inferiority" as subjective evaluative terms, the problem of bodily and mental differences in various races, on the basis of the facts known, can be answered positively. Several recent studies, like that of Porteus and Babcock, as well as new devices to test chemically the reaction of the blood of various races to a certain reagent, make this statement still more certain.

only to direct environmental conditions but also to the factor of heredity. That this factor plays a part in this respect may scarcely be questioned by any serious investigator of facts. There is no possibility of accounting for these differences through the influence of environmental agencies alone. From this standpoint, all the shortcomings of such theories as are indicated by Gobineau are valid. (See above. See also Chap. III.) The following categories of facts are especially unaccountable through environmental agencies. First in the same environment some racial groups have created complex forms of culture while others have not succeeded in doing it and have remained in the simple forms of culture. Second some racial groups have been able to create complex forms of civilization in the most different geographical environments while others have remained stationary in various geographical conditions. Third men of genius and partly the idiots are unaccountable through environment alone. Fourth men who came out of similar environments have achieved different things. Fifth there are failures who have come out of the most favorable environment and men of genius who have come out of the most unfavorable conditions. Sixth there is a lack of increase in the number of men of genius from the proletarian class in the nineteenth and the twentieth centuries in spite of the increase of educational facilities. These and other similar facts may be accounted for only through the admission of the factor of heredity¹⁷¹—through the fortunate and unfortunate combination of the *genes* of the parents. This does not mean that the direct influence of the environmental agencies such as food, climate, occupation, education and so on do not play their part but in order that they may change directly the really racial or hereditary qualities of an individual or a group it is necessary that a very long period of time should elapse.

The totality of physical and mental traits by which various races of man differ from each other is not unchangeable but hundreds and thousands of years are always necessary for such a transformation.

says Morselli:

¹⁷¹ See an analysis of the problem in my *Social Mobility* Chap. XIII.

I do not know of any case of racial transformation within one or two generations, unless it has been made through cross marriage. The environment of a race cannot quickly change its physical and mental qualities. As for education, it is absurd to expect this to change the racial traits of a group within one or two generations. It is true that, at the present moment, it seems that the qualities of a people are changing often and easily, but scientific investigation shows that such changes belong to the history of a nation or people as psycho-social phenomena, rather than to the category of the racial changes.¹⁷²

As far as the school insists on the important influence of heredity it is right, and, in this respect, it represents a good counter-balance against the one-sidedness of the exaggerated environmental school. But as far as some of the representatives of the school try to underestimate, or even to ignore, the influence of environment, they make the same mistake as the excessive environmentalists. There have been several attempts made to express quantitatively the relative importance of environment and heredity,¹⁷³ but they seem to remain somewhat subjective, and therefore inconclusive. Putting them aside, we may say with a reasonable degree of certainty that the factor of heredity plays an important part in determining the traits and behavior of individuals and groups. Thus far the contention of the school and its studies represent a contribution to the science, and deserve our appreciation.

E. The school is right also in ascribing a great importance to selection, and in giving significance to the racial changes of a population in explanation of the social phenomena and historical destinies of a cultured people. The school exaggerates somewhat the significance of these factors, but there seems to be no doubt

¹⁷² MORSELLI, *Le razze umane*, pp. 331-332, 341 *et seq.* Dr. Franz Boas has tried to show that under the direct influence of environmental agencies, it is possible to change the racial traits of a group very quickly, but his interesting results are subject to very serious criticism, and cannot be taken as conclusive. See BOAS, F., 'Changes in Bodily Form of the Descendants of Immigrants,' *Senate Documents*, Vol. LXIV, Washington, 1911. See criticism in the works of G. Sergi, K. Pearson, C. Gini and others indicated in the chapter, 'Geographical School.'

¹⁷³ See, for instance, PROFESSOR STARCH, *Educational Psychology*

that selection through differential fertility, mortality, and cross-marriages may efficiently, and in a relatively short time, change the racial stock of a population. Such a change may exert a tangible influence on social organization and social processes. If the changes consist in a survival of the "best," they may facilitate the progress of the society, if they are opposite, they may be one of the factors of a decay. We have a series of studies which rather convincingly show that the processes of a decay are usually accompanied by a change in the racial composition of the population. The best studied case of this type is the decay of Rome and Greece. All competent historians agree that Rome's population in the later period was different from that of the earlier period, and that the progeny of the earlier Roman aristocracy had already disappeared at the time of the first century, A.D. T. Frank has shown this convincingly. Otto Seeck made clear the "extermination of the best" in the war and revolution of Rome. Hence their conclusion that this racial change had to be one of the factors of Rome's decay.

What lay behind and constantly reacted upon Rome's disintegration was, after all, to a considerable extent the fact that the people who built Rome had given way to a different race. The lack of energy and enterprise, the failure of foresight and common sense, the weakening of moral and political stamina,—all were concomitant with the gradual diminution of the stock, which during the earlier days, had displayed these qualities.¹⁷⁴

Even if it is questionable to explain Rome's decay only through this factor,¹⁷⁵ it is probable that it has played a part in Rome's disintegration. At least, such an admission is no less probable than its denial. It is probable also that the contemporary form of differential fertility and low birth rate in Western societies will exert some negative influences on their social life in the future. A lower procreation of the upper and the professional classes means a relative or absolute decrease of their progeny in

¹⁷⁴ FRANK, T., "Race mixture in the Roman Empire," *American Historical Review*, Vol. XXI, p. 705. see also SEECK, OTTO *Geschichte d. Untergang d. Antik Welt*, *passim*, and all volumes. PARETO, *op. cit.*, Vol. II, pp. 1694 ff. FAHLBECK, P., *La decadence*, *passim*. SENSINI, G., *op. cit.*

¹⁷⁵ See ROSTOWTZEFF, *op. cit.*, pp. 485 ff., where the objections against such a theory are given.

the future population. As far as their qualities are due to heredity also, this means an impoverishment of the racial fund of these societies. A low birth rate, accompanied by a low mortality, means an elimination or weakening of the factor of natural selection, in other words, a survival of the weaklings who would be eliminated under the condition of high mortality which accompanies a high birth rate. Under such conditions, the population of such a society is likely to be composed more and more of the progeny of the weaklings and less "superior" people. The racial fund of the people being changed, their history is likely to be changed also. These conclusions seem to be corroborated by a series of facts. In the first place, Rome's and Greece's decay went on parallel to the extinction of their aristocratic stocks and a fall in their birth rate. In the second place, the long existing aristocracies, (the most durable among them being the Brahman aristocracy in India) have always been fertile, reproducing themselves in no less a degree than the lower classes. In the third place long existing societies, like the Chinese, Indian, or Jewish have always been fertile too. In the fourth place, a series of studies in the mortality rate of age groups below 32 years and above, both in civilized countries like Germany, France, and England, which have low birth and child mortality rates and in less civilized countries with higher birth and child mortality rates, like the Balkans, Hungary, and Russia, such studies have shown that in the last named countries, the mortality rates of the age groups above 32 years of age is not higher, but rather lower than that of the same age groups in more civilized countries. Such a thing could be explained only by an admission that the weaklings in the less civilized countries are eliminated through high mortality,¹⁷⁶ and that those who survive to a greater age than 32 are relatively strong people. For this reason, in spite of the less hygienic conditions they show less mortality than the corresponding age groups within the more civilized and hygienic countries.

¹⁷⁶ See about the selective character of death rate SNOW, E. C., *The Intensity of Natural Selection in Man*, London, 1911, K. Pearson's paper in *Biometrika*, Vol. I, pp 50-89. A. Floetz's paper in *Archiv für Rassen und Gesellschafts Biologie*, Vol. VI, pp 33-43, 1909. POPENOE, P., and JOHNSON, R., *Applied Eugenics*, Chap. VI, 1922.

Finally, medical investigations of the recruits of Germany, England, and France for the last few decades, have shown that the percentage of the biologically defective among them is not lower, but rather, higher than among the recruits of Russia, and that this percentage has been increasing in spite of an improvement in the standard of living in these countries at the end of the nineteenth, and in the beginning of the twentieth centuries. Such somewhat "unexpected" results testify rather in favor of the above negative "selection," due to low birth and child mortality rates, and a still lower procreation of the "best" stocks. An improving environment does not seem even to compensate for that which the societies lose through the selection and impoverishment of their racial fund.¹⁷⁷ These, and many other facts, make the school's conclusions in this field (minus their one-sidedness) probable, though they still remain in need of being tested.

F As to Lapouge's theory of social selections, their forms and effects,—it must be considerably corrected in details. He stressed too much the negative effects of the military, religious, legal, and other forms of social selection, overlooking entirely their positive effects. For instance, in the next chapter we shall see that the effects of military selection are much more complex and many-sided than Lapouge thought. The same is true in regard to other forms of social selection. Lapouge's central idea being valid, his one-sided and simplicist characteristics remain to be seriously corrected.¹⁷⁸

G Ammon's and Pearson's conception of various social institutions as a kind of "sieve" which tests, sifts, selects, and distributes the members of a society according to their qualities, and their interpretation of class differentiation in essence seems to be valid. The writer's study of the problem led to a similar con-

¹⁷⁷ See a more extensive discussion of this problem and its literature in my *Social Mobility*, Chaps. XX-XXII.

¹⁷⁸ Still more correction is needed by G. Hansen's theory of the migration from the country to the city. We know now that not all rural migrants enter city positions higher than the native-born. Further, the city population since the end of the nineteenth century, has considerably improved its biological balance. It is also not quite certain that the best people always migrate from the country to the city, and that those remaining in the country are "inferior." See the literature and details in my *Social Mobility*.

clusion (See *Social Mobility*, *passim*, and Chapters VII IX) However, this sound kernel of theory is overgrown in the works of Ammon and Pearson by a series of "hasty" exaggerations of a "propaganda" character They are to be discarded

H Gobineau's, Lapouge's, and many eugenists' theories of an inevitable harm in race blending seems to be one sided also The problem is by no means solved The numerous data obtained are very contradictory Hypothetically, the most probable solution of the problem seems to be as follows The blending of blood between certain racial groups is likely to be beneficial, while that between other races seems to be harmful On the other hand, inbreeding when the stock is good and not contaminated is likely to be beneficial, while, when the stock is poor or contaminated, it produces degeneration Such is the answer which is possibly nearest to the truth However, we still know very little of just exactly what are the conditions and races whose blending will be fortunate or unfortunate¹⁷⁹

8 GENERAL CONCLUSIONS

Space does not permit me to continue an analysis of the other statements of the school On the basis of the above, we must conclude that it has been one of the most important and valuable schools in sociology Rejecting its exaggerations and fallacies, we can be but grateful for its many contributions to our knowledge Even the school's one sidedness has been useful in counterbalancing the one sidedness of the excessive environmentalists Freed from their exaggerations, both schools complete each other excellently, and give "an aggregate key" to an understanding of a great deal of the mystery of human behavior and social processes

¹⁷⁹ See DUNN, L. C., "A Biological View of Race Mixture," *Publications of American Sociological Society*, Vol. XIX, pp. 47-56 REUTER, E. B., "The Hybrid as a Social Type," *ibid.*, pp. 59-68 LINTON, R., "An Anthropological View of Race Mixture," *ibid.*, pp. 69-77 MJOEN, J. A., "Harmonic and Disharmonic Race-Crossings," *Eugenics in Race and State*, pp. 40-61, Baltimore, 1923 HOFFMAN, F. L., "Race Amalgamation in Hawaii," *ibid.*, pp. 90-108 SAVORGNA, P., "Nuzialita e Fecundita delle Case Sarrane," *Metron*, Vol. III, No. 2, 1924 EAST, E. M., and JONES, D. J., *In-breeding and Out-breeding* Philad., 1919 HANKINS, *op. cit.*, Chaps. VII, VIII See there other references

CHAPTER VI

SOCIOLOGICAL INTERPRETATION OF THE STRUGGLE FOR EXISTENCE AND THE SOCIOLOGY OF WAR

I GENERAL CHARACTERIZATION OF THE BRANCH

IF THE biological conceptions of organism heredity variation and selection have inspired the series of sociological theories discussed above the same must be said of what Darwin styled the struggle for existence and adaptation. Though the theories of the struggle for existence survival of the fittest and of adaptation were set forth long before Darwin¹ nevertheless his hypothesis has greatly influenced the sociological thought of the post Darwinian period and has been one of the principal factors in causing the appearance of numerous divergent theories interpreting the struggle for existence within human societies. These theories are either a mere application of the biological law of

¹ Conflict, opposition, and struggle were long ago declared a fundamental law of the universe of life, and of man's existence and the source of all change and progress. Even the theory of the survival of the fittest was outlined not later than the fifth century B.C. Heraclitus. All is incessantly changing and War is the father of all things. Empedocles' theory of the struggle for life and survival of the fittest. Seneca's *invenere militare est* the Roman *militia est vita hominis* show that. There is also the Zend Avesta's fundamental principle that 'the history of the world is the history of conflict (of the opposite forces of good and evil) that 'there is a war in nature because it contains the powers that work for good and the powers that work for evil and that their struggle is permanent and omnipresent' (*The Zend Avesta, the Sacred Book of the East*. Vol. IV Oxford 1880 pp. LVI LVII and *passim*). The dualism of the good and evil forces, with their attendant struggle is given in a great many ancient religions. Since that time, the philosophy of conflict and of struggle whether in an application to the whole universe, or to the kingdom of life-phenomena or to the history of man has been running throughout the history of the social and philosophical thought of various peoples and societies. In the nineteenth century a great impetus to the idea was given by H. Spencer and especially by Charles Darwin. See a survey of the historical development of the theory of evolution in OSBORN H. F. *From the Greeks to Darwin* N. Y. 1908. See also the very brief account of H. H. Newman in his *Readings in Evolution Genetics and Eugenics* Chap. II Judd J. W. *The Coming of Evolution* Cambridge, 1911. SETTLER, G. Charles Darwin and the Theory of Evolution, *Sociological Review* April, 1926. DE QUATREFAGES A. *Darwin et ses précurseurs français* Paris, Alcan. PERRIER, E. *La philosophie zoologique avant Darwin* Paris, Alcan. NASMITH G. *Social Progress and the Darwinian Theory* Chap. I N. Y., 1916.

the struggle for existence to human society, or its variation. For this reason, the majority of them may be regarded as a branch of biological sociology. The purpose of this chapter is briefly to survey and analyze these theories, especially the various "sociologies of war."

Contemporary literature on "struggle sociology" is enormous. However, an incomparably greater part of it does not have any scientific value, being nothing but purely emotional and speculative 'ideologies'. Therefore this part may be dismissed without any analysis. What remains is well represented by a series of relatively few fundamental works, whose survey may be sufficiently representative to give an idea of the situation of sociological knowledge in this field. Before we analyze these theories, we shall "clear the ground" of a series of vague conceptions which make a clear analysis impossible.

2 UNCERTAINTY OF THE MEANING OF "THE STRUGGLE FOR EXISTENCE" IN BIOLOGICAL AND SOCIOLOGICAL LITERATURE

As is generally known, Darwin took the idea of a struggle for existence from Malthus. Introducing it, he was aware of a vagueness in its meaning.

I should premise that I use this term in a large and metaphorical sense including dependence of one being on another, and including (which is more important) not only the life of the individual, but success in leaving progeny.

He further gives a series of examples of the struggle for existence, which give to the term a meaning almost identical with that of the "reaction of protection and preservation," a meaning far broader than a mere 'extermination or elimination' of other organisms.

In these several senses, which pass into each other, I use for convenience sake the general term of "Struggle for Existence".²

This shows that Darwin practically left his conception of the struggle for existence undefined. In his work he uses the term in two different senses. The first is a broad one, which includes

² DARWIN CHARLES, *The Origin of Species* p. 78, N. Y. 1917.

all the phenomena of the "dependence of one being upon another" (hospitable and inimical), and all the protective reactions such as mutual aid, sociality, coöperation, and so on. The second is a narrower sense, which principally means the inimical, antagonistic, and "struggling reactions." This divergency of the meanings and the somewhat interchangeable use of both of them has considerably vitiated even Darwin's theory.

In the works of the biologists and sociologists, the defect has grown enormously. In the first place, each of them interprets the meaning of the struggle for existence in his own way. There are authors who talk of the struggle for existence among atoms, planets, stars, and molecules, not to mention the struggle of organisms, human beings, and societies.³ Some other authors use the term only in an application to living beings, but by the "struggle for existence" they understand not only inimical, antagonistic, or exterminating reactions, but mutual aid, solidarity, struggle for individuality and domination, coöperation, and so forth—that is, practically all the reactions of an organism.⁴ Finally there are the authors—though many of the above mentioned writers do the same too—who use the term in a narrow sense of the word, understanding by it only the antagonistic, and especially the injurious reactions occasioned by the extermination of one being by another. If to this anarchical use of the term in scientific works we add the incomparably worse anarchy in its journalistic and occasional usage, we cannot but agree with the ironical remarks of a prominent French biologist in regard to the factor of "struggle for existence."

Owing to a careless use of the term, "Struggle for Existence," a crowd of the superficial followers of Darwinism began to ascribe a magical power to the words. They are used now as the term "affinity" was once used—in all cases when it was necessary to get out of a difficulty. Society men especially journalists who talk of all

³ See for instance NOVICOW, J., *Les luttes entre sociétés humaines et leur phases successives*, pp. 1-50, Paris 1896. TARDE, G., *L'opposition universelle*, Paris 1897.

⁴ See for instance THOMPSON, J. A., *Darwinism and Human Life*, p. 91, N. Y., 1917. GIDDINGS, F., *Studies in the Theory of Human Society*, N. Y., 1922. BAGEHOT, W., *Physics and Politics*, N. Y., pp. 24, 50-52, 212-213, N. Y., 1884. NICOLAI, G. F., *Die Biologie des Krieges*, Vol. I, Chap. II, Zurich 1919. (There is an English translation.)

this without serious training and knowledge, philosophers, metaphysicians, men who fetishize words, even some of the scientists, think that all problems are solved as soon as they have succeeded in indicating, especially in English, the factor of the "Struggle for Existence" "Struggle for Existence" Nothing can resist that "Open sesame" which is supposed to unravel for us all the secrets of biology and sociology ⁵

If our discussion is going to be more or less fruitful, we shall have to omit all theories of a "struggle for existence" among atoms, planets, and so on. Let them be discussed by philosophers or by anyone else, but we are concerned only with human beings. We shall also have to omit all theories which give a very broad meaning to the struggle for existence, regarding as its varieties, mutual aid, coöperation, sociality, and what not. Such a broad interpretation of the struggle for existence makes the term practically meaningless, in this case it is possible, with equal right, to style all these phenomena as "A Life Protection" or "Help for Existence" or "Coöperation for Existence." It is an elementary scientific rule to style similar things with similar terms, and dissimilar things with different terms. The term, "struggle for existence," meaning the extermination of the other fellow, is so different from "struggle for existence" in the form of mutual aid with this fellow, that it is utterly impossible to cover them by, or identify them through, the same term. Moreover, if we should do that, it would be evidently impossible to find any clear and definite correlations between such a broad, indefinite, and self contradictory factor, and some other phenomena. These reasons are sufficient for dismissing all such vague and "meaninglessly broad" biological and sociological theories. Let them be discussed by

⁵ GLARD, *Facteurs primaires de l'évolution*, Paris, Librairie Croville-Morant pp xi-xii. Partly for similar reasons, such a prominent zoologist as P. Charles Mitchell, a member of the Royal Society, and the secretary of the London Zoological Society, after his careful analysis of the problem as to whether the generalization of the struggle for existence could be regarded a scientific law answers "It is rather ridiculous to claim that the natural selection and struggle for existence can demand a right to be considered as a scientific law. The pretension that the law of nature to which all other natural laws could be reduced is the law of struggle is quite fallacious. It is not a law but only an intensively discussed hypothesis"—MITCHELL, *Le Darwinisme et la guerre*, French translation, p. 29, Paris, 1916. The book was published in English in 1915, but at the present moment it is not available to me.

those who like to wander in the wilderness of high sounding, but vague and meaningless, phraseology

This means that we are going to deal only with those theories of the struggle for existence which use it in the narrow sense of antagonism, conflict, and war among human beings. But even with such limitations, not all these theories are worthy of being surveyed or discussed. A great many of them represent nothing but superficial "ideologies" or an inadequate generalization, without any serious proof or any systematic analysis of the facts. These may be dismissed also. For this reason such "theories" and "statements" as "The history of all hitherto existing society is the history of class struggle" (Marx-Engels), or "The law of struggle is an universal law" (Novicow), or "The struggle for existence is a law inherent in humanity as in all living beings" (E. Ferri), or "The law of struggle is a fundamental law of nature" (Bernhardi), and similar "figurative and meaningless generalizations," may be dismissed without any analysis.⁶ The reason is that such statements, being incidental, do not give much, they mean something pretty indefinite, and they are obviously one sided.

There is no doubt that, side by side with the phenomena of the struggle for existence, there exist the phenomena of mutual aid, coöperation, or solidarity. The studies of P. Kropotkin, W. Bagehot, and of many others, have made this clear.⁷ These phenomena, although opposite to the struggle for existence, are as general in the human and the animal world as the relations of antagonism and war. For this reason, all theories which try to make the struggle for existence into a unique or primary factor of social evolution are obviously fallacious. Similarly the same may be said of other "theories" of a like nature. After the above "clearing of the field" from pseudo-scientific "rubbish," let us turn to the sociological studies of war phenomena, as the acutest form of the struggle for existence among human beings.

⁶ MARX, KARL and ENGELS, F., *Communist Manifesto*, Kerr Edition, pp. 12-13, Chicago, 1913. NOVICOW, *op. cit.*, pp. 1-12. FERRI, E., *Socialism and Positive Science*, p. 25, London, 1909.

⁷ See KROPOTKIN, P., *Mutual Aid*, London, 1902, *passim*, BAGEHOT, *op. cit.* *passim*, MITCHELL, *op. cit.*, *passim*.

3 FORMS OF THE STRUGGLE FOR EXISTENCE, AND THEIR MODIFICATION IN THE COURSE OF HUMAN HISTORY

J Novicow's *Les luttes entre sociétés humaines et leurs phases successives*, M Vaccaro's *La lutte pour l'existence et ses effets dans l'humanité*, and Vaccaro's *Les bases sociologiques du droit et de l'état* may possibly serve as representative theories in this field. At any rate, their statements, which are shared by a great many sociologists, furnish a convenient starting point for a discussion of the problem.

The essentials of Novicow's theory are as follows. Eternal struggle is a universal and everlasting law. Such a struggle goes on among atoms, organisms, human beings, societies, and among all kinds of units. Among animals the struggle for existence assumes two principal forms: elimination and absorption. However, even among them are found traces of the milder economic and mental competition. The result of the struggle is an elimination of the less fit, and a survival of those who are better adapted to the existing conditions. Experience and knowledge have played a great part in the successful struggle among animals. Those organisms which displayed this quality in the greater degree have had greater chances to survive. Through an elimination of the unfit the struggle leads to a better and better adaptation. Its progress means a greater happiness. In the course of time this progress of adaptation, especially among human beings, becomes more and more rapid. In fact, "progress itself is nothing but an acceleration of adaptation."⁸ Turning to the forms and evolution of the struggle for existence among human beings, Novicow distinguishes at least four principal types. Their character and evolution may be seen from the following abbreviated scheme.⁹ This scheme shows that there are many forms of the struggle for existence in human society. According to the author, in the course of time the ruder forms of struggle are superseded by milder ones. The physiological struggle has now almost disappeared, while the form tends to become more and more intellectual. War is more and more being superseded by mental and intellectual competition. Besides, as time goes on, the transforma-

⁸ Novicow *op cit*, pp 1 12 30, 50

⁹ *Ibid* p 402 and *passim*

The Principal Forms of the Struggle for Existence and Their Evolution

Forms of the Struggle for Existence	Purpose	Forms of Manifestation
1 Physiological	Elimination extermination obtaining food	Cannibalism killing murder war for the sake of obtaining food and elimination of the enemy
2 Economic	Acquisition of the means of subsistence and wealth their accumulation appropriation etc economic wars	Brigandage economic competition and various forms of compulsion with the direct purpose of robbing an enemy
3 Political	Obtaining various economic privileges through political means political domination with the purpose of profiting from it in various ways The principal method is by the infliction of various punishments by threatening execution and so on Political wars	Usurpation enslaving serfdom spoliation annexation conquest
4 Intellectual	Struggle for an intellectual domination for a victory of a religion ideology, dogma civilization culture Methods propaganda various methods of assimilation training criticism intellectual persecution and so on	Religious wars revolutionary wars intolerance intellectual struggle competition and so on

tion goes on at an accelerated rate War in a physiological sense, will disappear entirely in the future Struggle will not disappear, but it will assume the forms of intellectual competition exclusively, without any bloodshed or extermination of fellow men The following quotation from another work of Novicow recapitulates his theory

The apologists of war are quite right in this that struggle is life.

Struggle is the action of the environment upon the organism and the reaction of the organism upon the environment, therefore a perpetual combat.

Without struggle and antagonisms societies would indeed fall into a state of somnolency, of most dangerous lethargy. That is perfectly true, but the great mistake consists in considering war the sole form in which humanity's struggle manifests itself. Besides the physiological struggle, humanity has economic, political and intellectual struggles, which do not exist among animals. It may even be stated that the physiological struggle, the dominant form in the animal kingdom, has ended among men, since they no longer eat one another.

Criticizing Ratzenhofer's and Gumplowicz's theories he continues

No grim fatality obliges us to massacre one another eternally like wild beasts. The Darwinian law in no wise prevents the whole of humanity from joining in a federation in which peace will reign. Within the federation of humanity the same will take place as takes place within each state. Here struggle has by no means disappeared but goes on under the form of economic competition, lawyers' briefs, judges' sentences, votes, party organizations, parliamentary discussions, meetings, lectures, sermons, schools, scientific associations, congresses, pamphlets, books, newspapers, magazines—in short, by spoken and written propaganda. And we must not suppose that these methods have been preferred to bloodshed because men have become better. Idylls play no part in this question. These methods have been preferred because they were found to be the most effective, therefore the quickest and easiest. All the methods of struggle just enumerated are constantly employed in normal times among 381,000,000 of English subjects inhabiting 25,000,000 of square kilometers. They could be equally well employed by 1,480,000,000 men inhabiting 135,000,000 square kilometers. Then the federation of the entire globe would be achieved.¹⁰

Such are the essentials of Novicow's theory.

¹⁰ Novicow, *War and its Alleged Benefits* translated by T. Seltzer, pp. 102-103, 113, 119, 125, N. Y., 1911. The French original edition was published in 1894, under the title, *La guerre et ses prétendus bienfaits*. In his later work, *La critique du Darwinisme social*, Paris, 1910, Novicow makes some statements which are somewhat contradictory to the above theory which will be indicated further. He published, further, a special monograph devoted to an analysis of the possibility and character of a federation of Europe, *La fédération de l'Europe*, Paris, 1901.

Vaccaro's (1854-) sociological theory of adaptation and the struggle for existence is drawn up along similar lines. Adaptation, in his opinion, is the final law to which all other biological and sociological laws could be reduced. Using Spencer's formula of life as an incessant adaptation of the inner relations to the outer, Vaccaro says that the essence of life is adaptation, and that adaptation consists of incessant efforts to establish an equilibrium between organism and environment. From this it follows that the more complex and dynamic the environment, the more complex and plastic the organisms will be, otherwise they would perish.¹¹ Combining Darwinian and Lamarckian principles, he discusses the evolution of organisms from this standpoint, the problems of heredity, and so on.¹²

Passing to man, he indicates that man's adaptation, compared with that of other animals, is more dynamic and complex, consisting not only, and not so much, in the modification of an organism as in a modification and creation of the means of adaptation outside of his organism (tools, instruments, weapons, and other "artificial organs").¹³ To adapt himself to his environment, man has had to struggle with cosmic forces injurious to him, with animal and plant organisms, and with fellowmen. The creation of various instruments to exterminate, annul, or modify the injurious effects of heat, gravitation, cold, and other cosmic forces, is nothing but an adaptation to a cosmic environment. The extermination of harmful organisms, cultivation of plants, and the domestication of animals, is again an adaptation to our environment.¹⁴ One of the most difficult tasks of adaptation has been that of man to man within a group, and of one society to another. This leads us to Vaccaro's theory of the struggle for existence among human beings, and of its evolution. Among other forms of adaptation among human beings, there has always been a form of the struggle for existence. In order to survive, human beings have had to adapt themselves to one another within a society, and to adapt one society to another. At the earliest stages this task was achieved with great difficulty and through the rudest methods—through a pitiless elimination of the

¹¹ VACCARO, M., *Les bases sociologiques*, pp. I-XX, Chap. I Paris 1898

¹² *Ibid.* Chaps. I-II

¹³ *Ibid.*, Chap. III

¹⁴ *Ibid.*, Chap. IV

weaker members of a group or of its "dissenters," and through a still more pitiless war and extermination of a weaker group by a stronger one. Vaccaro gives numerous facts to show that inner or exterior "war" at these stages was most bloody, inexorable, and permanent. Wars were incessant, and the conquered group was exterminated entirely. There was no pity for any member of a conquered group. The struggle was for absolute extermination.¹⁵ Later on, however, this inexorability of the struggle gradually decreased. The factors of this quantitative and qualitative decrease of the inner and outer struggle for existence were enlargement of the size of the groups and a decrease of their number, which made chances of inter group conflicts less numerous, an increase in the size of the groups, which made it more difficult to start the social machinery for war at any moment, as was possible when the groups were small. Under such conditions wars have become less profitable, and an increase of social contacts, commerce, and similar factors has also contributed to this effect. For these, and similar reasons, the intra and inter group struggle for existence has been becoming less and less rude quantitatively and qualitatively.¹⁶ In inter group struggle this mitigation first manifested itself in the increased numbers of the members of a conquered group who were spared and permitted to live. At the beginning only some of the children were spared, later, women then, all the non-dangerous members and later still, the majority of the members of such a group. Instead of exterminating them, they were exchanged, turned into slaves sold, and exploited in various ways. In this way the circle of pacified population has been expanding more and more. Furthermore the treatment of the spared conquered people has been becoming more and more humane, until it has reached the present situation in which, as soon as the war is over, the conquered have almost as many rights as the conquerors.¹⁷ Thus quantitatively and qualitatively, the inter group struggle—war—has

¹⁵ *Ibid.*, Chap. V. See also VACCARO, M., *La lotta per l'esistenza e suoi effetti nell'umanità*. Rome, 1886, French translation, Paris, 1889. For an evolution of the intra-group struggle for existence (crimes and punishment) see his *Genesi e funzione delle leggi penali*, Rome, 1889.

¹⁶ *Les bases*, Chap. VI. Other works *passim*.

¹⁷ *Ibid.*, Chaps. VI-VIII.

been dying out, and inter-group adaptation has been gradually progressing.

Similar has been the trend in the evolution of intra-group struggle. At the earliest stages, the treatment of offenders against the members of a group was pitiless. Bloody revenge, expulsion, duels, and similar measures of elimination and extermination were the rule. Later on, these measures have also become more and more humane, until they have reached the present "penological" policy, in which the element of cruelty and torturing of an offender is reduced to a minimum, and tends to disappear completely.¹⁸

If now we glance at the struggle between the conquerors and the conquered forcibly subjected to the control of the conquerors, its evolution shows the same tendency. The conquerors used to become the privileged or governing stratum of the conquered society. Their interrelations at the beginning were those of a sharp antagonism in which the aristocracy, through a severe coercion and cruelty, forced the conquered or the lower classes to obey its despotic domination. The government was necessarily a military dictatorship of the conquerors over the conquered. As the mutual adaptation of both the classes grew, coercion and cruel despotism began giving way to milder forms of social control. The place of military despotism was taken by a theocratic government considerably milder than the former régime, then the place of theocracy was superseded by a still milder aristocratic régime, and its place, in time, by a democratic régime in which the differences between the conquerors and the conquered, between the governing and the governed classes, have been practically obliterated. Instead of an outside government, we have self-government, instead of a compulsory and tyrannical control, self-control, based on the will of the people and free from bloodshed and despotism. Thus in this field the tendency has been the same as that in other fields of the inter- and intra-group struggle for existence. All of them taken together show that the bloody forms of the struggle have been dying out in the course of time. Adaptation has been progressing, as a finer and more

¹⁸ *Ibid.*, Chap. IX.

humane technique has been superseding the bloodier and ruder one. All this indicates that war punishment extermination and elimination of human beings by their fellowmen will disappear in the future and a mobile and harmonious adaptation will be established.¹⁹

Such is the skeleton of Vaccaro's theory. Each of his statements is supported by rich ethnographical historical and political materials. This in addition to the harmonious and well rounded character of the whole theory greatly increases the convincing power of Vaccaro's conclusions.

It is scarcely necessary to say that the above conclusions of Novicow and Vaccaro are shared in their essentials by a great number of sociologists economists moralists political thinkers and historians not to mention an immense number of journalists publicists preachers politicians pacifists and others. They think that the outlined disappearance of war and the bloody forms of the struggle for existence within human societies is inevitable. G. Tarde, M. Kovalevsky, E. Ferri, G. de Molinari, G. Ferrero, N. M. Butler, G. Nicolai, W. H. Taft, R. S. Bourne, S. C. Mitchell, L. Petrajitzky, W. G. Sumner, A. G. Keller, the entire body of the Carnegie Endowment for International Peace, the enthusiasts of the League of Nations, various societies for the promotion of peace and so on, may all be quoted as examples of the many people who believe this.²⁰

¹⁹ *Ibid.* Chaps. X, XII.

²⁰ G. Tarde claims that the stage of opposition or conflict between the two subsequent,—old and the new—adaptations tends to become shorter and shorter and less and less cruel as time goes on. See TARDE, *Social Laws* pp. 105 and *passim* 110–113, 132–133. N. Y. 1899. He was one of the earliest theorists who classified the phenomena of opposition into three principal forms: war, competition, and polemics,—the classification commonly accepted now but sometimes wrongly attributed to Simmel. KOVALEVSKY, M. *Contemporary Sociologists* pp. 164 ff. FERRI, E. *Socialism and Positive Science* pp. 24–25 and *passim*. DE MOLINARI, G. *Grandeur et décadence de la guerre*. Paris, Alcan, 1898. SUMNER, W. G. and KELLER, A. G. *The Science of Society*. Vol. I. 1927 pp. 16, 62 ff. 390 ff. FERRERO, G. *Il militarismo* 1898. NICOLAI, G. *op. cit.* PETRAJITZKY, L. 'Voprosy o sotsialnom ideale', *Juridich. vestnik* 1913, Vol. II, p. 34. See the statements of N. M. Butler, W. H. Taft, R. Bourne, S. C. Mitchell, in WOODS, F. A. *Is War Diminishing?* Boston, 1915. Introduction. A similar opinion was held by the writer in his book, *Crime and Punishment* 1914, pp. 317–385 (Russian) and in his 'The Trends in Evolution of Punishment', (Russian) in *Novyya idei v pravoochenii*. Vol. II.

CRITICISM

Can we say that the essentials of the above theories are scientifically proved and accurate? I am afraid not. They are very sympathetic, and therefore tempt belief, but a serious scientific scrutiny shows their fallacies.

In the first place, it is not true that among animals the struggle for existence assumes only the forms of elimination, extermination, and devouring of other organisms. We cannot say this of the majority of plants, or of many of the non-carnivorous animals. Besides, as a series of biologists have shown, the victory in the struggle for existence has not necessarily belonged to the most voracious beasts. Very often it has been obtained by those species which have been less cruel and voracious.²¹ Furthermore, Kropotkin and many other investigators have shown that mutual aid is in no way restricted to human societies. It is quite common among animals. We cannot even say that the higher the place occupied by species on the "ladder of life" the less voracious they are. Such an assumption is quite false. Moreover, there is some truth in the ironical remark of Montaigne that "war is a specific characteristic of the human species", and in a no less ironical epigram of Shaftesbury that Hobbes' famous "*homo homini lupus est*" is an insult to wolves, because they are less rapacious and cruel toward one another than is man toward man. These facts are sufficient to show the fallacy of Novicow's statement that, as we proceed from the lower to the higher animals, and from the animals to man, "the physiological struggle for existence" tends to disappear. The facts do not support such a pleasant "generalization" at all.²² Now, considering man, can we say that the above scheme of the evolution of the inter- and intra-group struggle for existence is accurate? I am afraid it is not. In his later book, Novicow himself indicates that, at the beginning of his history, man was "a fruit-eater" and not "a flesh-

²¹ See the corresponding facts in MITCHELL, *op cit*, Chap II.

²² It is curious to note that in his later book, in the heat of his criticism of sociological Darwinism, Novicow himself indicates that among animals, war, as a struggle of one group with another, is extremely rare, as is also an individual "physiological" struggle among the members of the same species. War is a conspicuous trait of human society. See Novicow, *La critique de Darwinisme social*, pp. 43, 47-48, 61, 153.

eater," and that man's strong herd instinct made a peaceful fellow out of him. Only when the development of man's intellect broke the power of this instinct, did war appear in human history.²³ All this is but a speculation, but yet it shows Novicow's contradiction of his own statement that, in the course of human history, the struggle for existence has been perpetually decreasing, passing from the physiological to the intellectual form. Turning from this speculation to the facts, can we say that primitive man was more rapacious, bloodthirsty, and warlike than civilized man, as we are told by Novicow, Vaccaro, Sumner, Keller, and even by S. R. Steinmetz,²⁴ not to mention a crowd of incompetent asserters? If the facts, as far as they are known, do not permit us to answer the question negatively, still less do they permit us to answer it positively. Now we certainly know that a "savage" is in no way similar to a cruel, bloodthirsty, and voracious beast, as he has been often depicted.²⁵ The passage from the lowest hunters to the highest agricultural groups among the simple peoples is certainly great. If the criticized theory were right we would have to expect that war would be less known to, and the treatment of the vanquished more humane among, the high agricultural peoples than among the lowest hunters. Facts, however, do not support this expectation. The following table, in which the results of a study of 298 simple peoples are summarized, shows this. Only in nine cases has "no war" been found, and these instances have not been taken from among the high agricultural peoples, but from among the lower hunters and the lower agricultural peoples. This leads the authors of the study to the conclusion that "organized war rather develops with the advance of

²³ Novicow, *ibid*, pp. 50, 53, 207. A similar speculation is repeated by Nicolai in his superficial *Die Biologie des Krieges*, Vol. I, pp. 29-32. Nicolai practically follows Novicow's work.

²⁴ As we shall see, Dr. Steinmetz very vigorously claims that war will not disappear in human history and he is one of the most prominent scientific defenders of war. Nevertheless, he also states that "war is the usual business of primitive tribes that 'die Wilden, wahrscheinlich nach der allerersten Stufe, bluthurstig waren und ihre Kriege in der grausamsten Weise mit ungeheueren Verlusten an Menschen fuhren' — STEINMETZ, *Die Philosophie des Krieges*, pp. 55-57, 190, Leipzig 1907.

²⁵ See WESTERMARCK, E., *The Origin and Development of Moral Ideas*, Vol. I, pp. 334 ff., Chaps. XIV, XV, XVI. London, 1906.

industry and of social organization in general ' 26 The table is as follows

Number of Cases of Each Form of Treatment for the Vanquished Among Each Class of People ' 27

Classes of the Peoples	Vanquished Slain	Men Only Slain	Women and Children Enslaved
Lowest hunters	6	3	5 5
Higher hunters	23	17	10
Lowest agricultural	15	6	1
Higher agricultural	44	7	8
Higher pastoral	1	1	1
Still higher agricultural	16	7	6
Classes of the Peoples	Generally Enslaved	Adopted	Exchanged or Set Free
Lowest hunters	1	1	1
Higher hunters	11	9 5	7 5
Lowest agricultural	4 5	12	
Lowest pastoral	2	1	
Higher agricultural	15	14	7 5
Higher pastoral	1		1
Still higher agricultural	35	2	1 5

The table probably contains a larger number of the simple peoples studied from this standpoint than any other study. Therefore it is less fragmentary and incidental than many other studies of primitive peoples based on one sidedly few cases. Being such contrary to Vaccaro's and Novicow's theory it does not show any noticeable quantitative or qualitative decrease of war as we pass from the stage of the lowest hunters to that of the highest agricultural peoples.

If we turn to historical peoples the discussed theories occupy

* HOBHOUSE L. WHEELER G. and GINSBERG M. *The Material Culture and Social Institutions of the Simpler Peoples* p. 228 London 1915

¹ *Ibid* p. 232

no better position. At the present moment we have at least two more or less systematic attempts to find out whether or not war has been decreasing among the European peoples during the last nine centuries. As a basis for deciding this problem the authors observed the number of years in each century spent by a country in war and in peace. One of them added to this the data which show what per cent of the fighting force (army) perished in all the principal wars of these centuries. The principal results of their study are as follows ²⁸

Number of Years Spent in War in Each Specified Century in Each Specified Country

(The upper line of figures are those of F A Woods the lower one of Bodart)

Country	1100-1200	1201-1300	1301-1400	1401-1500	1501-1600	1601-1700	1701-1800	1801-1900
England	54	36	65	57	54.5	43.5	55.5	53.5
France	36.5	49	43	52.5	60.5	46.5 64	50.5 52	35 74 ^a 32 ^b
Austria and the Hapsburg					75.5	73.5	48.5	13.5
Austria Hungary						77	59	25
Russia					78.5	57.5	49.5	53
Turkey					80.5	89	23	39.5
Spain					73	82	48.5	53.5
Poland					55	68	22.5	
Denmark					32.5	30.5	12	15
Holland						62.5	29.5	14.5
Prussia of the Hohenzollerns						58.5	31	13
Sweden					50.5	50	29.5	6.5

^a with co on all wars

^b without colonial wars

These figures show that only in regard to small countries whose total population composes an insignificant part of the European population would it be possible to talk of the diminishing of war. The data concerning large countries does not give any valid

²⁸ WOODS F A *Is War Diminishing?* pp 34 39 43 53 64 67 73 78 85
⁹¹ BODART G *Losses of Life in Modern Wars* pp 4 75 78 Oxford 1916 By the way it is curious to note that the Hohenzollern Prussia, which in speeches used to be slandered as the very embodiment of militarism was objectively the least militarist c of all large countries. This is a good illustration of a discrepancy between what is the objective truth, and what is subjective public opinion.

basis for such a conclusion. If to this we add the appropriate consideration of F. A. Woods, concerning the long cycles in the movement of war, and finally the data of the twentieth century, we cannot but agree with Dr. Woods' conclusion that the "lines [in his valuable diagrams] for England, France, and Russia would never suggest that militarism is ceasing", and that all the data can, at best, "do no more than throw a moderate amount of probability in favor of declining war years" ²⁹

If we take the per cent of losses for the belligerent armies in the wars of the seventeenth, the eighteenth, and the nineteenth centuries, we cannot see any tendency toward a decrease. Meanwhile, the size of the armies has been increasing not only in an absolute number, but probably even in proportion to the population. During the last war we saw that almost the entire population of nations was turned into an army. If, therefore, the per cent of the losses of the contemporary armies is no less than that of the armies of the past, this strongly suggests that, contrary to many authors, among them Steinmetz, there is no definite decrease in the number of war victims. Numerous and detailed tables given by Bodart of the losses in all the principal battles of the above three centuries, computed as a per cent of the total strength of the fighting armies, do not show even the slightest tendency toward a decrease of these losses ³⁰. These data seem sufficient to show that the

²⁹ *Ibid.*, pp. 29-30. J. de Maistre was the first who made such a tentative computation, and he came to the conclusion that *la guerre est l'état habituel du genre humain dans un certain sens c'est-à-dire, que le sang humain doit couler sans interruption sur le globe, ici où là et que la paix pour chaque nation n'est qu'un répit*. — *Considérations sur la France*, *Oeuvres*, Vol. I pp. 28 ff. G. Valbert, on the basis of the computation of the *Moscow Gazette* says that "from the year 1496 B. C. to A. D. 1861, in 3,358 years, there were 227 years of peace and 3,130 years of war or thirteen years of war to every year of peace. Within the last three centuries there have been 286 wars in Europe. He adds further that "From the year 1500 B. C. to A. D. 1860 more than 8,000 treaties of peace, which were meant to remain in force forever, were concluded. The average time they remained in force was two years". — VALBERT, G., in the *Revue des Deux Mondes*, April, 1894, p. 692. Having these facts in view, the Honorable George Peel in his *The Future of England* p. 169, said that for fifteen centuries, since the full adoption of Christianity by the continent of Europe, peace has been preached and for these fifteen centuries the history of Europe has been nothing but a tale of blood and slaughter."

³⁰ Here again the popular writers have imposed upon the public quite a wrong picture of the militarism and enormous armies of past centuries, especially of the middle ages. The real situation was very different. The armies of the past, being mercenaries and professional fighters, were as a rule very small, sometimes

alleged disappearance of war is hard to prove by the actual data. Vaccaro's and Novicow's tendencies have been rather more a matter of imagination than an accurate description of the reality.³¹

As to the qualitative decrease of the cruelties of war the criticized theories seem to be very doubtful also. Of course some may believe the extermination of an enemy through machine guns poisonous gas crushing by tanks big cannon shells and other scientific methods more humane than that by arrow or club or spear but this is a matter of personal taste. In the opinion of the author there is no substantial difference which would permit one to talk of a progressive humanizing of war in the course of time. The last war experience has shown also that in the twentieth century women children and civil populations were often exterminated just as according to Vaccaro they were exterminated in the remotest past.³²

These indications are possibly sufficient to show the illusionary character of the discussed theories. I am afraid the deeper we dig into the facts the more conspicuous their fallacies are going to appear.³³ They are nothing but derivations in which the de-

amounting to a few dozen, or hundreds, or to a few thousand men. The figures for the Austrian, and other armies in the battles of the seventeenth, the eighteenth, and the nineteenth centuries are given in Bodart's study. Looking through these figures one sees how systematically the fighting armies have been increasing from the seventeenth to the nineteenth centuries. It is probable that the increase is greater than the increase of the population for the same period. See BODART *op. cit.*, *passim*.

³¹ As I mentioned in my youthful work, I myself held the same belief but a more careful study of the facts has made me change my opinion.

³² If one takes the colonial wars of the European countries in the years of 1923-26 one will have a still more conspicuous example of the falseness of the alleged disappearance of war cruelties. Whole cities in Syria, Morocco, India, Afghanistan, etc. were shelled. Women, children, and the whole population were exterminated. A wonderful humanizing of war indeed.

³³ As a contrast to these theories we have the opposite ones whose authors try earnestly to show that, with a progress of civilization, the cruelties and the severity of the struggle have not been decreasing but increasing. One of the most interesting treatises of this kind was published by A. N. Engelhardt in his book *Progress as the Evolution of Cruelty* (Russian). The author collected an enormous amount of material from the histories of the past and the present wars, and of the colonization of the natives by the European nations, to prove his principal thesis. If this thesis cannot be accepted (it is also one-sided) the work at least shows the fallacy of the opposite opinion. As is known, B. Kidd, in studying the theories, ideologies, beliefs, and tendencies of the second half of the nineteenth century also came to the conclusion that the West was becoming incomparably more brutal, warlike, and rapacious than it had been before. During this period there was a recrudescence of the pagan doctrine of the

sirable trend is substituted for the real one. So much for this point.

Now, as to the *forms of the "struggle for existence," or the forms of antagonistic relationship among human beings, they are numerous*. Their classification depends upon the purpose of the study. The majority of the existing classifications represent a variety of Tarde's threefold classification—war, competition, and polemics, which approximates Novicow's four forms of struggle.³⁴ Such are the classifications of G. Simmel, of L. v. Wiese, R. Park, and E. Burgess, E. A. Ross, and of some others.³⁵ There is no doubt that such a classification embraces only one aspect of the problem, and that it is only one out of many possible classifications. In the first place, it is possible to classify all antagonisms according to their specific characteristics. They may be, for example, *conscientious and unconscientious, one-sided*, as when they include only the antagonism between wolves and sheep, or they may be *mutual*, where both parties menace each other, *absolute*, where one party tends to exterminate another physically, or *relative*, where extermination is not necessarily an objective, but where subjugation, exploitation, domination, and competition of various kinds enters. In the second place, according to "*the diagnostic symptoms*" or "*manifestations of antagonistic attitudes*" (forms) there are antagonistic relations—*war, physical fight, competition, opposition, polemics, compulsion, coercion, and a series of mimical relationships*. According to the antagonizing units there are antagonisms between *individuals and between groups*. According to the nature of the antagonizing units there are antagonisms between *states, nationalities, races, religious groups, political parties, sex groups, social classes, occupational,*

omnipotence of force," a return to the religion of force—cruelty, slaughter, and so on. Kidd's conclusions are also one-sided, but again they stress the one-sidedness of the opposite opinions. See Kidd, B., *The Science of Power*, Chaps. I-III, N. Y., 1916.

³⁴ TARDE, *Social Laws*, pp. 110 ff.

³⁵ See further the chapter about the formal school. Competition, opposition, and conflict,—such are the principal forms in antagonistic relationship, according to L. v. Wiese, R. Park, and E. Burgess, who discriminate between competition (interaction without social contact) and conflict (interaction with social contact), which in its turn, is divided into war and other forms of conflict. E. A. Ross enumerates a series of opposite forms: see Ross, E. A., *Principles of Sociology*, 1923, Chaps. XI-XIX.

*economic, ideological groups, and so on*³⁶ This brief enumeration shows the possibility of a divergent classification of human antagonisms Which of these many possible classifications is to be used depends upon the purpose of the study

4 SOCIAL FUNCTIONS AND THE EFFECTS OF WAR AND STRUGGLE

How little the phenomena of war and struggle have been studied, and how inadequate is our knowledge in this field, is conspicuously shown by the existence of two opposite types of sociological theory about social functions and the effects of war According to one type of theory, war and struggle have been the principal factors of human progress and have exerted a series of most beneficial effects³⁷ According to the other type of theory, war is "hell" and has exerted only the most disastrous influences on various sides of social life³⁸ Both types of opinion are supported by prominent social thinkers, and the dispute between them continues to go on up to this day Let us glance somewhat closer at the arguments of both parties Their polemics and arguments are usually carried on in the form of "evaluating" judgments of

* Compare with J Delevsky's classification of antagonisms given in his elaborate study *Social Antagonisms and Class Struggle in History* (Russian) St. Petersburg 1910 See other classifications of antagonisms in SOROKIN, *System of Sociology*, Vol I, pp 207-211 PARK, R. and BURGESS, E *Introduction*, Chaps VIII-IX SAVIGNAN F 'Les antagonismes sociaux' *Scientia*, 1914, I VII, pp 138-146 See also *Annales de l'Institut International de Sociologie*, Vol XI devoted to the problem of social antagonism, and composed of the papers of prominent sociologists CARVER T N *Essays in Social Justice* pp 93-97 Cambridge, 1915

³⁷ The representative theories of this type are given by J de Maistre who is regarded as the father of such theories in the nineteenth century See his 'Considerations sur la France,' (1790), Chap III 'Les Sources de St Petersburg' septième entretien in *Oeuvres* Vols I V STEINMETZ, S P, *Die Philosophie des Krieges* CONSTANTIN A, *Le rôle sociologique de la guerre* Paris 1907 PROUDHON, *La guerre et la paix* JAHNS, M *Ueber Krieg, Frieden und Kultur* Berlin, 1893 G Valbert's paper published in the *Revue des deux mondes* April, 1894 GUM PLOWICZ, RATZENHOFFER, SOMBART W *Krieg und Kapitalismus* Munchen 1913 Vaccaro's, and some others belong also to this group of works as far as they explain the origin of the state, social organization and other social institutions through war and struggle G LeBon L Ward and E Renan, not mentioning such apologists of war as F Nietzsche, Bernhardt and others, belong partly to this group, too

³⁸ The representative works of this type are the quoted works of Novicow, Nicolai, N Mikhailovsky, Kropotkin, Molinari Ferrero Mitchell, B Kidd, Lapouge, and the works of O Seeck, V Kellogg D S Jordan, Nasmuth and of many others quoted further, not to mention a legion of pacifist pamphlets and publications.

"good" or "bad," "beneficial" or "harmful", and the "desirable" or "undesirable" influences of war. Such a method inevitably introduces into the theories a series of non-scientific conceptions. They, in their turn, facilitate a misunderstanding between the parties, and very often shift the dispute from the field of a description of the facts as they are, into the field of moral evaluation and speculative reasoning. In order to avoid such an unscientific procedure, I shall split the problem into its important sub problems, and, in this way, present a brief summary of what is known in this field, what is proved, and what is still uncertain.³⁹

A WAR'S SELECTION

Concerning the character of war selection there are two opposite theories. According to one the selection of war is negative, according to the other it is either neutral or positive. The first theory was brilliantly developed by H. Spencer, partly by Darwin, and by V. de Lapouge (see the chapter about the Racial School) and more recently by a series of authors such as J. Novicow, Nicolai, O. Seeck, D. S. Jordan, V. Kellogg, Charles Gide and many others. The argument of this group runs as follows: Armies, as a general rule, are composed of the "best blood" of the population,—the healthiest, because the unhealthy and the physically defective are not taken into an army, the most efficient age groups, because the old and children are not recruited, the more honest, because criminals are not permitted to enlist in an army, and the brightest people mentally, because the mentally defective or feebleminded are excluded from an army. Through such a selection the army is somewhat superior physically, morally, and mentally to the common population of the country. During a war, it is the army which suffers losses, the civil population either does not suffer at all, or has incomparably fewer losses. This means that war exterminates the "best blood" of a nation in a far greater proportion than its "poorer blood." This means that war facilitates a survival of the unfit. Exterminating the best blood, at the age at which the reproductive capacity of the

³⁹ A very rich collection of war facts for future studies in this field is given in the works of VON BLOCH, *Der Krieg* several volumes and *Encyklopädie der Kriegswissenschaften*, several volumes and BERNDT, O., *Die Zahl im Krieg*, 1900.

soldiers is far from being exhausted, war exterminates the best progenitors of the future generations,—the bearers of the best racial qualities. It favors a propagation of the poorer blood and in this way it is a factor of negative selection and of racial degeneration. Vaccaro stressed another form of this. In a long series of facts he has shown that, especially in the past, the conquerors aimed always to exterminate in the first place the strongest, the most courageous, the most intelligent, or the leaders of the opposite party. The Roman rule *parcere subjectis et debellare superbis* (spare the submissive and demolish the proud men) has been a general rule of almost all wars. Such was the policy of the Spartans in regard to the strong Helots, of the Dorians in regard to conquered native peoples, of the Aryans in India, of the Romans in regard to many peoples conquered by them. The same is true in regard to civil strifes, where each victorious party pitilessly exterminates the leaders of the opposite group, and when success passes from party to party we have, as it was in Rome and Greece, a series of exterminations of the leading men of all parties by one another. "Since the submissive, to the exclusion of the brave and upright men, beget children, the traits of baseness and servility become fixed in the race." In this way military selection has exterminated millions of the best individuals, and through that has facilitated a procreation of the poorer elements of the population,—of the innate slaves and submissive peoples.⁴⁰

Other negative influences of war and militarism on racial and biological composition of the population may be added. They make a great many wounded soldiers physically defective. They facilitate various epidemics and sicknesses, and undermine the health of the soldiers and population. What is more important, militarism, even in time of peace, is responsible for a very high per cent of venereal diseases, especially of syphilis, among the soldiers. Through this it directly contributes to the degeneration of the nation. Further, war exterminates the officers of an army in a greater proportion than the soldiers. Officers being superior to the soldiers, this means that war again works negatively. Such

⁴⁰ VACCARO, *La lutte pour l'existence dans l'humanité*, p. 51, Paris, 1802

are the principal considerations of those who maintain that selection through international, civil, or any kind of war, is negative ⁴¹

As the incidence of the death from the wounds and disease of war falls not at random on the general population, but on a specially selected part of it, namely, its sturdy young and middle aged men, and men often not alone of especial physical fitness but of unusual boldness and loyalty of spirit, and as these deaths may in times of severe and protracted wars be very considerable in number and take a heavy toll for several or many successive years from this particular part of the population, thus lessening materially the share which it would otherwise take in the reproduction of the population, it would seem to be inevitable in the light of the knowledge of the reality of race modification by selection, that serious wars should lead to a racial deterioration in the population concerned ⁴²

Such is one of these formulas

Some of the authors went so far in an evaluation of the negative selection of war that they made it responsible for the decay of nations. Such, for instance, is O Seeck's theory. According to it the principal factor of the decay of Rome and Greece was an extermination of the best blood of the nations through bloody wars and civil strifes ⁴³. The theory is repeated eloquently by D S Jordan ⁴⁴. Later, he and H E Jordan illustrated it through a study of the effects of the Civil War on Virginia ⁴⁵.

The arguments of the opposite theory, which maintains that war selection is either neutral or even positive I shall use for aiding my criticism of the theory just outlined. Can we say

⁴¹ See NOVICOW, *War and Its Alleged Benefits*, Chap IV. NICOLAI, *op cit*, Vol I, Chap 3. NASMITH G., *op cit*, p. 379. JORDAN D S. *The Human Harvest*, Boston, 1907. JORDAN, D S., and H E., *War's Aftermath* Boston 1914. GIDE, CHARLES "La reconstitution de la population française" *Revue internationale de sociologie*, 1916. DARWIN, L., "On the Statistical Enquiries Needed after the War in Connection With Eugenics," *Journal of Royal Statistical Society*, March, 1916. OTLET, P., *Les problèmes intern et la guerre* 1916. KELLOGG V. *Military Selection and Race Deterioration*, in Carnegie Endowment for International Peace Publications, Oxford, 1916 also "Eugenics and Militarism" in *Problems in Eugenics*, 1912, pp. 220-231. SOROKIN, P., "The Effects of War on Social Life," in *Ekonomist* (Russian) Petrograd, 1922 No. 2. *Sociology of Revolution*, Chap XI.

⁴² KELLOGG, *Military Selection and Race Deterioration* pp. 197-198.

⁴³ See SEECK, O., *Geschichte des Unterganges der antiken Welt*, 3d ed., Berlin, 1910. Vol I, Chap 3, and throughout six volumes.

⁴⁴ See JORDAN, *The Human Harvest*, pp. 28 ff.

⁴⁵ *War's Aftermath*, pp. 22 ff.

- that the theory of negative selection is sufficiently proved? In the opinion of the writer, there seems to be a considerable portion of truth in the theory. Nevertheless, some of its propositions are questionable, and some others need to be tested further.

In the first place, even if negative selection takes place in present day warfare, the same cannot be said certainly about warfare in the past. In the present warfare, which is carried on with poisonous gas, shells, bombs and so on, physical resourcefulness, courage, dexterity, intelligence, and cunning may not give any preference to the survival of the stronger men of an army. Shells, gas, and bullets exterminate them as easily as the weak soldiers. In wars of past history the situation was different. It is likely that the strong, skilled, dexterous, and clever fighter had then a greater chance than a weak soldier to go out of a battle alive. The reason is that in a fight with arrows, spears, lances, and so on, such a strong man could much better protect himself than a weak fighter.⁴⁶ Furthermore, because of starvation, lack of necessities, and other sufferings common in such wars, only those who could endure all this could survive, while the weak had to perish. Moreover, the stronger heroes seem to have had much greater chances for procreation (because of greater success among women, through polygamy, through the right of the stronger, through raping, and so on) than the coward, the weakling, and the physically and mentally defective. Even the facts indicated by Vaccaro are not quite general. The leading group very often obtained its life and freedom by means of concessions, ransom, and other values given to the conquerors at the cost of the masses ruled by such leaders. These considerations show how complex is the problem, and how difficult it is to find the real effects of war selection.

A number of authors indicate that, even at the present time, war's selection is far from being such as it is depicted above.

Also in modern warfare cunning and resourcefulness count for a great deal. *It seems highly probable that more than ever before, superiority in intelligence is a great asset among fighting men.*

* Compare Ross, E. A., *Principles of Sociology* pp. 386-387. BUSHEE, P. A., *Principles of Sociology*, pp. 124-125.

Even in the present trenches,

the best shots are killing more peoples than the poor shots ~~are~~ and the best shots will be themselves least often struck. So it is with other forms of killing. It is highly improbable that superiority in handling modern weapons is not correlated with general mental superiority. If it be admitted that intelligence is a factor at all, then the more intelligent must themselves tend to escape, from the mere fact that they tend to do more killing.

Furthermore, even in modern wars

the great mortality is really of advantage to the race, because, within the army itself, those who can survive hardship and disease must be by nature stronger than those who succumb. In whatever light we may view all these difficult questions the great fact remains that somehow man has evolved, and he has fought, presumably, half of the time. If warfare is so deleterious it may be asked: How did he get where he is? We have thus seen how difficult and complicated is the philosophy of war. Yet most writers have been content to take one side or the other of the issue, so that we have scarcely begun to have a science of the subject.⁴⁷

C. Gini and F. Savorgnan add to these considerations a new one. If, in regard to men, war's negative selection is true, its harm is compensated for through the positive selection of females due to war. Owing to the extermination of the males, the number of men decreases, and, because of this, the "supply" of females increases. Not all of them can now have a chance to be married and have children. Thanks to a "dearth" of males, only the relatively better females are now married. The poorest among them, who could have married had the war not taken place, now remain outside the "procreators" of the future generations. Thus, negative selection among males is compensated for by positive selection among females, because in determining the qualities of the offspring, the female parent counts as much as the male parent.⁴⁸

⁴⁷ Woods, F. A., *op cit*, pp. 23-27. Compare Holmes, S. J., *Studies in Evolution and Eugenics*, N. Y., 1923. Sumner, W. G., *War and Other Essays*, 1911, Popehoe, P., and Johnson, R. H., *op cit* Chap. XVI.

⁴⁸ Gini, C., "The War from the Eugenic Point of View," in *Eugenics in Race and State*, pp. 430 ff., Baltimore, 1921. Savorgnan, F., "La guerra e l'eugenica," *Scientia*, June 1926.

Dr Steinmetz states generally that the losses and the negative selection of war are greatly exaggerated. On the basis of the losses of the Franco-Prussian War, he tries to show that they are less than the normal fluctuation of the mortality rate from year to year. Under such conditions it is impossible to talk about the deterioration of a race through war.⁴⁹ Besides, in modern wars about three-fourths of the losses are due to epidemics and only about one fourth to warfare. This means that the stronger men survive while the weaker die. Other authors indicate that statistics and facts do not corroborate the statements of the opposite theory. If negative effects were noticed by Villermé and B de Chateauneuf,⁵⁰ in contrast to their findings R. Livi did not find any trace of such deleterious effects on the Italian soldiers born in the years of war and after them.⁵¹ To the same conclusion came Colignon in his study of the French recruits of 1892 from Dordogne who were born in the year of war and revolution.⁵² A similar conclusion was reached by O. Ammon in his study of the Badenese recruits of the early nineties. F. Savorgnan found that the per cent of the still born children and the death rate of the babies did not increase, and the weight of the newborn babies did not decrease in the years from 1914 to 1919 in comparison with the years from 1906 to 1914.⁵³ On the other hand, Claassen and some others have found that the per cent of defective recruits in Germany has been systematically increasing from 1902 to 1913, though the period from 1879 to 1892 and later was the period of peace in the history of Germany.⁵⁴ This means that a degeneracy in the vitality of a population may take place in the most peaceful times. These factual studies make

⁴⁹ *Philosophie des Kriegeres*, pp. 71 ff.

⁵⁰ VILLERMÉ, L., "Mémoire sur la taille de l'homme en France," in *Annales d'hygiène publique*, 1^{re} série, t. I, pp. 351-399, 1829. DE CHATEAUNEUF, B., *Essai sur la mortalité*, *ibid.*, 1^{re} série, t. X, pp. 239-316, 1833.

⁵¹ LIVI, R., *Antropometria militare*, Vol. II, pp. 89 ff., Rome, 1905.

⁵² COLIGNON, R., "Anthropologie de la France," Dordogne, *Mémoires de Société de Anthropologie de Paris*, série III, t. I, 1894.

⁵³ AMMON, O., *Zur Anthropologie der Badener*, 1899, Jena, SAVORGNAN, F., *op. cit.*, pp. 419-428.

⁵⁴ CLAASSEN, W., "Die Abnehmende Kriegstüchtigkeit in Deutschen Reich," *Arch. f. Rassen und Gesellschafts Biologie*, Vol. VI, 1909, pp. 73-77. Vol. VIII, 1911, p. 786. Vol. X, 1913, p. 584. Similar results were found in France and in England before the War and during the War in regard to the recruits born and brought up in the period of peace.

the discussed theory still more questionable. Moreover Steinmetz brings out two reasons in the endeavor to show that even if war selection is in some degree negative this harm is far counterbalanced by war's positive effects. Following the opinion of Plutarch Polybius Aristotle Machiavelli Vico and of many others he claims that the peacetime selection is negative also. It leads to vice loss of virility and to a survival of the people who are far from being the best blood of the nation. Peaceful competition leads to a regressive selection too. This claim is not entirely denied even by those who like Mallock Jentsch Ferri Ploetz Woltmann and others insist upon the negative character of war selection⁵⁵. Therefore it is questionable which of these two negative selections (of war and of peacetime) is more harmful and regressive.

War that shatters her slain

And peace that grinds them as grain

What however is especially important is that war is an instrument in the selection of the groups—a selection whose importance is far greater than that of the selection of individuals. Like K. Pearson Steinmetz contends that among men there is not only a struggle among individuals going on but among groups also. Which of the two groups is better more resourceful more intelligent and therefore more entitled to survive could not be decided without war. War is the instrument of group selection. It is the only test serving this purpose and the test which is adequate because it tests at once all forces of the belligerent groups their physical power their intelligence their sociality and their morality. The victory is the result of a mobilization of all the forces of a nation. The conqueror is always he who shall fatally conquer on the basis of the superiority of all his forces. Without war such a group selection would be impossible. *Sans guerre tout le monde deviendrait ruse dur et lâche comme les Juifs*

⁵⁵ STEINMETZ *La guerre moyen de sélection collective* in CONSTANTIN A. *Le rôle sociologique de la guerre* pp. 268 ff. See above about Lapouge's social selection theory. See MALLOCK, W. H. *Aristocracy and Evolution* London 1898. JENTSCH *Sozialauslese* 1898. WOLTMANN, L. *Die Darwinische Theorie und Sozialismus* 1899. HAYCRAFT *Darwinism and Race Progress* 1896.

d'aujourd'hui " ⁵⁶ Compared with this positive group selection, the negative results of individual selection through war become quite insignificant.

The above shows that the character of war selection is much more complex than it is usually supposed to be. On the basis of what we now know about it, it is impossible to agree either with the "cursers" or the "praisers" of war selection. The truth seems to lie somewhere between these two one-sided theories.

B WAR'S EFFECTS ON THE HEALTH OF THE POPULATION

Somewhat more certain seems to be war's influence on the health of a population, especially when the war is long and strenuous. The disorganization of economic conditions, and the increase of hardships make the satisfaction of primary necessities more difficult, and, in connection with this, tends to increase various epidemics, ailments, and sicknesses. In regard to venereal diseases the increase seems to be certain ⁵⁷ In regard to epidemics of plague, influenza, cholera, typhus, etc., especially in the past, their increase could not be questioned. A great many mediæval wars were followed by various epidemics. The same seems to be true even in regard to modern wars, including the World War, ⁵⁸ though the modern sanitary and hygienic measures have considerably decreased the chances for, and the severity of, epidemics. Less certain is the war influence on nervous or mental diseases. Several studies have found an increase and credited it to war, ⁵⁹ but the data have always been fragmentary and incomplete. Where war hardships are great, a decrease in the weight of new-

⁵⁶ STEINMETZ, *La Guerre*, pp. 241, 251, Chap. III, also "Les sélections individuelles ou corollaires," in *Annales de l'Institut International de Sociologie*, Vol. IV, 1898.

⁵⁷ See KELLOGG, *op. cit.* Tuberculosis increased in the years of the World War, but after its end decreased again. *Handbuch d. sozialen Hygiene*, Vol. III, pp. 200-207, Berlin, 1926.

⁵⁸ It is enough to mention the post war influenza which swept throughout all belligerent (and neighboring) countries.

⁵⁹ See, for instance, OETTINGEN, *Moralstatistik*, 1881, p. 68, GOROVOI-SHALTAN, "Mental Diseases Under the Existing Conditions," (Russian), the *Journal of Psychology, Neurology, and Experimental Psychology*, (Russian), 1922, pp. 34 ff., OSIPOFF, "Mental Diseases in Petrograd," in *Investia of the Health-Communistat*, 1919, Nos. 7-12 (Russian), SOECKNICK, ANNA, "Kriegseinfluss auf jugendliche Psychopathen," *Archiv für Psychiatrie*, Jahrgang 24, Bd. 70, pp. 172-186. See there other references.

born babies, an increase in the per cent of still born children, and an increase of various deformities and ailments due to the abnormal conditions are probable. But again this is likely to be only one side of the complex picture. There may be several opposite influences which, however, scarcely counterbalance the above effects. From the standpoint of the future of the race, these negative influences, with the exception of venereal diseases are scarcely important. Eliminating possibly the weakest elements of a population, they may be even beneficial from the standpoint of racial selection. But again, all these statements are still to be tested, and now represent only more or less probable hypotheses.

C INFLUENCE OF WAR ON VITAL PROCESSES

In this field the effects of war, at least of modern wars are more certain. They are as follows. With the beginning of war, the death rate of the whole population of a belligerent country begins to go up, and rises until the end of the war. After its termination it abruptly goes down, and sometimes falls below that of the pre war level, but within one, two, or three years after the termination, it returns to pre war level and assumes the pre war trend of movement. The marriage rate falls at the beginning of a war, continuing this movement until the end, when it suddenly jumps up to the pre war level, as a result of the many marriages which were postponed because of the war. Within one or two years, however, it returns to the pre war level and resumes its pre war trend. In a somewhat similar way the divorce rate fluctuates. The birth rate begins to fall nine months after the beginning of war, and goes on decreasing up to nine months after its termination, when it jumps up above the pre war level as a result of the great increase of marriages in the post war years but within one or two years it returns to its pre war level assuming its pre-war trend. In details this scheme varies from country to country, and from war to war, but, in essentials, such was the fluctuation of the vital processes in the belligerent countries in the cases of the World War, the Prussian Danish War, 1864, the Prussian Austrian War, 1866 the Napoleonic Wars, the Crimean War, the Franco Prussian War, 1870-71, the Russian

Turkish War, 1877-78, the Serbian-Bulgarian War, 1885, the Balkan War, 1912-13, the Russo-Japanese War, 1904-5; the Civil War of the United States, and some others.⁶⁰

D INFLUENCE OF WAR ON ECONOMIC PHENOMENA

In this field the principal effects of war are a waste of wealth (in the form of capital and human material) and an extraordinary shifting of it from society to society, and from group to group within the same society. As does any large enterprise, war requires a great mobilization of wealth. Furthermore, war destroys cities, factories, and other economic values. In this sense it may be regarded as a waste. If we agree to estimate an adult individual at 32,000 francs (as is done by some economists) then a loss of 20,000,000 individuals in war means a loss of 640,000,000,000 francs. In brief, the wasteful character of war may scarcely be questioned.⁶¹ The next general effect of war is an extensive redistribution of wealth among societies, and among the groups and individuals of the same society. It is manifest in the shifting of the wealth of a conquered group to the conquerors, from the belligerent countries to neutral ones, in the economic ruin of some groups in favor of others of the same society, and in an impoverishment of the masses and an attendant enrichment of some individuals. In brief, war always is an important factor in the shifting or displacement of wealth.

⁶⁰ See the figures in my "The Influence of War," in *Ekonomist* No. 1, 1922, Petrograd, Russia. SOROKIN, "Influence of the World War upon Divorces," *Journal Applied Sociology* 1925 No. 2. WOLFE, A. B. "Economic Conditions and the Birth Rate after the War," *Journal of Political Economy*, June, 1917. NOVOSELSKY, S. A., "War and Movement of Vital Processes," (Russian) *Obshchestvenny Vrach*, Jan., 1915. NIXON, S. W., "War and National Vital Statistics," *Journal of the Royal Statistical Society*, June, 1916. See other data in the well-known works of G. v. Mayr, Levasseur, and Cauderlier. Less certain is the fact, accepted by some statisticians, (e.g., by Oettingen) that in the post-war years there is an extraordinarily high proportion in the births of males, as a compensation for the males exterminated in war. In the last war such a phenomenon was not noticed.

⁶¹ The purely economic literature in this field is enormous. About the general economic effects of war see NICOLAI, *op. cit.*, Vol. I Chap. IV. NOVICOW, War Chap. V. BOAG, H. "Human Capital and the Cost of the War," *Journal Royal Statistical Society*, Jan., 1916. OTLET, P., *op. cit.*, pp. 26 ff. BOGART, E. L. *Cost of the War*. ROBINSON, E. VAN D., "War and Economics," in CARVER's *Sociology and Social Progress* Chap. IX.

from group to group, and from man to man⁶² However, it must be noticed that the economic losses and destructions caused by war are often restored within an extraordinarily short time The explanations of this fact vary, but the truth is that it seems to have happened many times

Furthermore, the unusual stimulation of the inventive power of a nation for the sake of military victory has often facilitated the invention of a new method or the improvement of the old methods of wealth production In this way it has indirectly contributed something toward economic progress and has, sometimes, at least partly compensated for its economic damages⁶³

WAR AS A MEANS OF EXPANSION FOR SOLIDARITY AND PEACE

That war stimulates animosity and the most inimical feelings among the enemies during the time of war is evident Less evident however, is the other side of the problem, the fact that war has been a powerful instrument in the process of expanding groups into larger and larger peace areas Yet even in the past it was said "*si vis pacem para bellum*" (if you want peace, prepare for war) Many ancient authors understood this function of war More recently R. Jhering, in his brilliant essay⁶⁴ has shown that "the objective of Law is Peace, but the road to it is War" At the present moment it seems to be certain that without war and compulsion this process of the unification of numerous and inimical groups into larger and larger pacified societies would have scarcely been possible War and other means of coercion have been instrumental in this respect Through them it has been possible to make the conquerors and the conquered into one group, to keep them together, to establish an intensive contact between them, to "level" their differences, and, after several generations of living together, to make out of them one social group in which previous differences and animosities are obliterated At the pres-

⁶² See the data and literature in SOROKIN *Social Mobility* Chap XVIII; LEWINTON (MORUS), R., *Die Umschichtung der Europäischen Vermögen*, Berlin, 1925, SCHIFF, W., "Die Agrargesetzgebung der Europäischen Staaten vor und nach dem Kriege," *Archiv für Sozialwissenschaft*, 1925 pp 469-529 WHITE, E., "Income Fluctuation of a Selected Group of Personal Returns," *Journal of American Statistical Association*, Vol XVII, pp 61-81

⁶³ See about that, SOMBART, W., *Krieg und Kapitalismus*, München, 1913

⁶⁴ See JHERING, R., *The Struggle for Law*, translated by J. Lalor, Chicago, 1879

ent moment this rôle of war seems to be certain, and is recognized by a great many investigators ⁶⁵

F THE MORAL EFFECTS OF WAR

Concerning this problem, opinions vary from the most positive apology for war to its most positive damnation. Let us briefly survey what in these opposite theories is more or less certain, and what is a speculation.

War, Brutalization and Corruption —

Neither circumstances nor human beings become better in the time of peace, it is from war, which may become more rare, that we must expect progress. From a biological standpoint, aggressiveness has been a condition necessary for progress.

Without it man could not emerge from his animal state, because he would be exterminated by other species. Without war an upward movement within humanity would not be possible, because any means of finding out which social group is superior and which is inferior would be absent. A long or eternal peace would make man an exclusively egotistical creature, without virility, courage, altruism, or bravery. Such a man would be entirely effeminated, and corrupted to the very heart of his nature. Degeneration, effeminacy, idleness, corruption,—such would be the results of an eternal peace. Such are the arguments of the defenders of the beneficial effects of war on man's conduct and behavior ⁶⁶

War, an appeal to brute force, is always a degradation, a descent into the animalism that demoralizes the victors, as well as the vanquished. Bloodshed produces international hatred, and international hatred produces the most baleful evils. War is the most

⁶⁵ See STEINMETZ, *Philos. des Kriegeres*, pp. 27 ff., SOROKIN, *Crime and Punishment*, pp. 216-247. GIDDINGS, F., *Democracy and Empire*, 1901, pp. 354 ff. KELLER, A. G., *Through War to Peace*, N. Y., 1918. VINCENT, G. E., 'The Rivalry of Social Groups,' *American Journal of Sociology* Vol. XVI, pp. 471-484. CASE, C., *Outlines of Introductory Sociology*, Chap. XXX, N. Y., 1924. SUMNER, W. G., *War and Other Essays*, New Haven, 1911. GUMFLOWICZ, L., *Der Rassenkampf*, Innsbruck, 1883, (see about Gumplowicz the chapter on the Sociological School). VACCARO, *Les bases, passim*. BUSHEE, *op. cit.*, pp. 130 ff. See, however, the opposite opinions of several writers in NASMITH, Chaps. III-VI, TODD, A. J., *Theories of Social Progress*, Chap. XIX.

⁶⁶ STEINMETZ, *La guerre*, p. 288, Chap. I.

active cause of our backwardness and mental stagnation. It brutalizes a man, strips him of all really human ethics, turns him into a beast, and entirely demoralizes him.

Such is the opposite opinion.⁶⁷

I think that the mere contrasting of these opinions is sufficient to show their mutual fallacies. Steinmetz is right in maintaining that aggressiveness was necessary for man to survive and rise above an animal level, but it scarcely follows from this that courage and virility can be displayed only in the form of slaughtering other men, that war does not have any brutalizing effects, or that in peaceful coöperation no progress is possible. Novicow is right in maintaining that war demoralizes human beings greatly, but one fails to see how man really could survive by being quite pacifistic and non aggressive. It is doubtful also that a safe and eternal peace is always beneficial. Still more questionable is it that war has not been instrumental in an increase of altruism and social devotion within at least a fighting group.

In brief, both sides are one-sided in their sweeping statements, and the truth again seems to lie somewhere between these extremes.

Criminality and War—The influence of war on criminality represents one of the bases for a judgment concerning its moral effects. Does war favor or check criminality? The answer is that we do not know. There have been several statistical studies of the problem, they have shown that, for instance, in Germany in the years of 1866 (the Austria Prussian War) of 1871 (Franco Prussian War), in France in 1830 and 1871, the number of crimes decreased abnormally.⁶⁸ On the other hand, there are some data (principally concerning defeated countries) which show a sudden, though quickly passing, increase of criminality in the years of war.⁶⁹ This suggests that there is probably no general rule, and that the character of war effects depends greatly on

⁶⁷ Novicow, *War*, pp. 72, 74, Chap. VIII.

⁶⁸ See von MAYR, G., *op. cit.*, Vol. III, pp. 947-949, STARKE W., *Verbrechen und Verbrecher in Preussen 1854-78*, Berlin, 1884, pp. 63 ff. *Bydragen tot de statistiek van Nederland*, N. V. No. 231. LEVASSEUR, E., *La population française*, Vol. II, pp. 442-445. CORNE, A., "Essai sur la criminalité," *Journal des économistes*, 1868, (January).

⁶⁹ BOURNET, A., *La criminalité en France et en Italie*, 1884, pp. 42, 47, 114. SOCQUET, J., *Criminalité en France*, 1884, p. 25.

many conditions such as whether the war is successful whether it is carried on in the territory of the country or in that of the enemy, whether it is accompanied by a great economic disorganization, whether it is popular among the people of the nation and so on. This is confirmed by F. Zahn's study which did not find any uniform effect of the World War on the criminality of various countries.⁷⁰ Furthermore it is necessary to add that a decrease of criminality in time of war may also be due to the fact that many of the would be criminals are enlisted in the army, and there find a full opportunity to satisfy their criminal proclivities in the form of heroic military exploits. This consideration is supported by the fact that in France and in Germany as soon as the war of 1870-71 was over criminality began to go up again.⁷¹ The above seems to be true of civil and revolutionary strifes also which are likely to be much worse in this respect than international wars.⁷²

Granting that the hypothesis is true that sometimes war is followed by a decrease of criminality Tarde seems to give an excellent interpretation of the fact when he says

The effect of militarism is to exhaust the criminal passions scattered through every nation to purify them in concentrating them and to justify them by making them serve to destroy one another under the superior form which they thus assume. After all is said and done war enlarges the sphere of peace as crime formerly used to enlarge the sphere of honesty. This is the irony of history.⁷³

As to the influence of military service and discipline on the criminality of the soldiers in time of peace there seems to be no reason to think that it is noticeably positive or negative. The attempts to show a greater criminality of the soldiers as compared with that of the common population are unreliable.⁷⁴

War and Social and Anti Social Forms of Conduct—After all criminal actions are only a small fraction of the socially and mor

⁷⁰ See ZAHN F. *Kriegskriminalität*. Schmollers Jahrbuch für Gesetzgebung pp. 243-271. 47. Jahrgang 1924.

⁷¹ TARDE G. *Penal Philosophy* p. 422. Boston 1912. PARMELEE M. *Criminology* pp. 99-102. N. Y. 1923.

⁷² SOROKIN P. *The Sociology of Revolution* pp. 146-147. Chap. IX.

⁷³ TARDE *Penal Philosophy* p. 422.

⁷⁴ See LOMBEROSO C., *Crime Its Causes and Remedies* pp. 201-202. Boston 1911.

ally relevant actions. What is war's influence on the total group of such forms of conduct? Here again the truth probably lies somewhere between the apologies of the enthusiastic admirers of war and the curses of the war-haters. The admirers claim that war is an efficient school of altruism, solidarity for death and life, and of "a cure by iron which strengthens humanity" ⁷⁵ The war-haters claim that war is the school of an exclusive egotism, bestiality, servility, brutality, harshness, slaughter, and of all imaginable mortal sins ⁷⁶ Both of these extreme views cannot stand even a quite superficial test. If the first opinion were true, the nations like the Swiss, the Dutch, and the Belgian, (before 1914) which did not have any war during two or three generations, would be the most egotistical and corrupted. The reality does not corroborate such an expectation. If the second opinion were true, the belligerent nations, especially in a period of a long time war, would be the most anti-social and beast-like. The reality also does not support such an opinion. The Romans in the fifth, the fourth, and the third centuries B. C. were almost continually at war, while the Greeks in the time of the Greek-Persian wars also were in an incessant warfare, and yet we cannot say that the morals and sociality within their own nations were weakened. On the contrary, their inner-group sociality, morals, sacrifices for the sake of the country, the relative purity of the *mores*, lack of corruption, and so on, at that period were conspicuous. What is true of these groups is true of many other groups and individuals. There are "professional soldiers" who display all the harsh and ruffian qualities of an anti-social creature, and there are soldiers who are highly moral and social. There are cases in which war, especially an unsuccessful one, has demoralized a society, and there are cases of the opposite character. It is enough to confront the opposing arguments to see their mutual fallacies. A really scientific study must pass over emotional speculations, and get busy with the facts to be able to say what kind of war, under

⁷⁵ See, for instance, the quoted works of Steinmetz and Valbert.

⁷⁶ See, for instance, Novicow's *War*, Chap. VIII, NICOLAI, *op cit*, Chaps. III, IV, *passim* NASMITH, *op cit*, Chap. IV and almost all pacifist publications, and many of the publications of the Carnegie Endowment for International Peace, which represent nothing but propaganda wrapped into pseudo-scientific dresses. Much nearer to the truth are the views developed in SUMNER KELLER, *The Science of Society*, Vol. I, pp. 397 ff.

what conditions, when, and in what respect, facilitates man's anti-socialization and society's demoralization, when, under what conditions, and what kind of war produces the opposite effects. Such studies are almost lacking up to this time.

G INFLUENCE OF WAR ON POLITICAL ORGANIZATION

Possibly the most important generalization in this field was set forth by H. Spencer, in his theory of the militant and the industrial type of society. The essentials of Spencer's theory are first, that war and militarism lead to an expansion of governmental control, second, to its centralization, third, to its despotism, fourth, to an increase of social stratification, and fifth, to a decrease of autonomy and self-government of the people. In this way, war and militarism tend to transform a nation into an army, and an army into a nation. Peace tends to call forth the opposite results: a decrease of governmental interference, an increase of the people's liberty and self-government, a weakening of social and political stratification, and decentralization. The reasons for such effects of war are as follows. Other conditions being equal, in a war the nation turned into an army and controlled by a powerful government has more chances to conquer than a nation in which everybody acts as he likes, and in which a strong control, centralization, and coordination of the activities of its members is lacking. Furthermore, military education, training, and discipline inculcate the habit of unquestioning obedience in the "rank and file," and that of control in the higher authorities. The very nature of the army, for the sake of victory, requires such a hierarchical and autocratic organization. Besides, the life in military barracks is one in which soldiers are controlled by the higher authorities. They do not have, and cannot have, a considerable amount of freedom and self-control. All this tends to ingraft into a nation which has many and long wars the habits of "military discipline, obedience on the part of the subordinated, and a despotical control on the part of the commanding authorities. Thus, in its turn, contributes to the expansion, centralization, and despotic character of governmental control. Such are the essential processes tending to be brought about by war and militarism. Being such, they, however, may assume various

"dresses"—especially in the form of "ideologies" and "speech-reactions"—according to the circumstances. Sometimes they have the appearance of a despotism of military leaders, kings, and aristocratic dictators. But sometimes they assume the forms of "socialism" and "communism," "dictatorship of proletariat" or "nationalization." In spite of the difference in such "dresses," this difference is quite superficial. Both types of "dresses" wrap objective social processes of an identical nature. Both tend to realize an expansion of governmental control, (in the form of a "communist," "generals'" or kings' despotic government). Both tend to make it unlimited (in the form of an emperor's autocracy or of a despotic "dictatorship" of communist leaders) through the universal control of "nationalized" industry and wealth, through the limitation of private ownership property, and initiative, through the control and regulation of the behavior and relationships of the people, both restrain the liberty of individuals up to the limit, and turn the nation into the status of an army entirely controlled by its authorities. The names are different in the two cases, the essence is the same. Thus, according to Spencer, militarism, "communism" and "socialism" are brothers. The increase of the former leads to the success of the latter, unless the tendency toward the expansion of governmental control assumes the "reactionary" form of an increase in the power of kings lords, or military rulers.⁷⁷ Such is the essence of Spencer's correlation of militarism with the militant, and of peace with the industrial types of political organization.

In its essentials, Spencer's generalization appears to me to be valid.⁷⁸ The correlation between war and militarism, on the one hand, and a trend toward expansion, and a despotic form of cen-

⁷⁷ See SPENCER, *The Principles of Sociology* Vol I §§ 258-263 Vol II §§ 547-582 Vol III §§ 840-853. Spencer even predicted a coming temporary rise of socialism as a contemporary dress for the expansion of governmental control due to militarism. Spencer's theory with some modifications has been further developed by W. G. Sumner in his *War and Other Essays* New Haven, 1911. It was brilliantly corroborated by R. Pohlmann in his *Geschichte d. Antiken Kommunismus und Sozialismus* by V. Pareto in his excellent *Les systèmes socialistes*, and by a great many other investigators of the problems of socialism, militarism, despotism, and étatism.

⁷⁸ Steinmetz's criticism of it does not appear to be valid. See STEINMETZ, "Classification des types sociaux et catalogue des peuples," *L'année sociologique*, Vol III.

tralization of governmental control (whether in a "reactionary" or "communistic and socialistic" dress) on the other, seems to be tangible indeed. This does not mean that it may not sometimes be checked by the interference of a specific factor or that militarism is the only factor of these phenomena. There certainly are other factors, and among them an especially important role is played by the impoverishment of a society. This, however, does not annul the correlation so brilliantly outlined by Spencer.⁷⁹ Besides the past historical data, it has been conspicuously corroborated by the last war, and by the post-war years. We have had an extraordinary expansion of governmental control in all belligerent countries. There has been a rise in the success of socialist and communist parties which led in Russia, in Hungary, Bavaria, and so on, to the "Militant Communist Dictatorship" and to socialist governments in many other countries. We have seen, further, how, with the termination of the War and its post-War effects, and with the pacification of societies, the success of these groups in all these societies began to diminish. The despotic character of the groups' policies, and their unlimited communism (in Russia) began to become more and more moderate, until there remains very little of it even in Russia, and even there, the capitalist system, private property, and freedom of citizens and other characteristics of an 'industrial' society, have been considerably re-established through the hands of the communists themselves.

In brief, Spencer's generalization seems to be valid in its essentials.

H WAR, REVOLUTION, AND REFORM MOVEMENTS

Their interrelation has been studied little. Nevertheless there seems to be a tangible correlation between these two phenomena,

⁷⁹ Such are the conclusions to which the writer has come in the process of his own study of the social effects of militarism, impoverishment, of the factors of an expansion of governmental control, socialism, and communism. See SOROKIN, *The Effects of War on Social Life*, (Russian) *passim*. "Impoverishment and Expansion of Governmental Control," *American Journal of Sociology* Sept. 1926. "Famine and Ideology," *Ekonomist*, (Russian), No. 5 1922, Petrograd. War and Militarization or Communization of Society" (Russian) *Artelnoye Delo*, Nos. I-IV 1922, Petrograd. *The Sociology of Revolution* Chaps. XIII-XV. See also the indicated works of Sumner, Pöhlmann and Pareto.

especially between an unsuccessful war and revolution. Such a war is in a great many cases followed by revolution (in 1917-18 in Austria, Turkey, Hungary, Germany, Russia, Bulgaria, Greece, and so on), in 1905 in Russia, in 1912 in Turkey, in 1870-71 in France, and in a great many other cases in various countries during the previous centuries. On the other hand, many revolutions have led to wars.⁸⁰ Generally they tend to breed each other. The reasons for this are quite comprehensible. An unsuccessful war means that the society's organization could not meet the test of war, and that it consequently needs a reconstruction. Through its calamities it breeds a dissatisfaction in the masses, and stirs them to revolt against the existing conditions, especially against the political regime. Hence, revolution as a result of a military defeat. On the other hand, revolution itself tends to change so radically the existing relationships within such a society and outside of it that it endangers the most important interests of many social groups within, and outside of, that society. Such an antagonism is likely to result in civil or international war as the final method of solution for such antagonisms.⁸¹ Hence war as a result of revolution, and their functional relationships. This correlation has been studied very little, but its existence seems to be probable.

Even when there is no revolution after or during a war, it, nevertheless, is followed by many a social reform and reconstruction. War, especially a great or long war, inevitably causes so many and so great changes, through the very fact of its existence that no society can go on without alterations of its "social machinery" or regime. Whether these alterations are good or bad is a matter of personal taste, but that they follow war, and that war facilitates them can scarcely be doubted.

I WAR AND SOCIAL MOBILITY

The above is corroborated in another form. The mobility of social objects, values, and individuals in time of war and immediately after, seems to become extraordinarily intensive. War is an "accelerator" of the horizontal, as well as the vertical shifting

⁸⁰ See SOROKIN *The Sociology of Revolution* pp. 336 ff.

⁸¹ See an analysis of this problem in my *Sociology of Revolution* Chap. XVII.

of social objects and individuals from one social status to another. *Social climbing from the poor to the wealthy classes, from the lower to the higher strata, from disfranchised to the privileged groups, and the reverse process of a social sinking of individuals and groups, is more intensive in time of war than in time of peace.* The same is true in regard to the shifting from occupation to occupation, from one territorial community, political party, or ideological group, to another. In this respect war plays the part of a fire which makes the particles of water in a kettle boil and move much faster. The same may be said of the vertical and horizontal mobility of social objects and values, (*mores*, fashions, beliefs, ideologies, opinions, tastes, and so on). They change and circulate within a society, and among societies, much faster in time of war than in time of peace. A quick and substantial modification of the "habits and *mores*" of a society, and various epidemics of "phobias" in time of war and immediately after have been many times observed, though they are only partial manifestations of this general phenomenon.⁸²

J WAR AND CHANGE OF OPINIONS, ATTITUDES, AND DISPOSITIONS

The above intensification of the mobility of social objects through war may be observed also in a sharp and quick change of opinions (ideologies and speech reactions) and attitudes of the people with the beginning of war and after it. At the present moment we have several excellent studies in this field, such as A. L. Lowell's, W. Lippmann's, and some other works. President Lowell well described this process:

When civilians enlist in time of war their change of attitude takes place, not after long experience of army life and of battles, but almost at once, and it is due to a new orientation—a recognition of a different and paramount object, transcending in immediate importance the former ones. It is the result, in short, of a radical change in the focus of attention. Moreover the change of sentiment is not confined to the army. The men and women who stay at home also assume a new attitude on the outbreak of a war that requires a great national effort. They are often no less ready than soldiers to restrict liberty. They do not shudder at reports of the loss of thou-

⁸² See the data in SOROKIN *Social Mobility* Chaps. XVII-XIX and *passim* and LOWELL, A. L. *op cit* Chaps. V-VII.

sands of lives of their fellow citizens in a victorious battle, as they would at the loss of scores in an accident in time of peace. They delight to work and deny themselves comforts in a way that they would otherwise think intolerable.⁸³

The increase of patriotism, and hatred toward the enemy, readiness to underestimate his virtues and overestimate his defects, a willingness to believe anything favorable to their own country and unfavorable to the enemy,—all these, and many similar sudden changes of attitudes and disposition are usual in time of any war supported by the nation. There is no need to mention that the same fact may be observed in popular ideologies. Many ideologies, æsthetic values, political and moral opinions, literature, poetry, paintings, and so on,—popular in time of peace—become unpopular in time of war, and *vice versa*.

This intensive circulation of social values continues to exist in the post war years. They are marked by the changes in the way of readjustment to the new peace conditions. During the first few years after an armistice, society experiences an extraordinary change in this direction. One of its conspicuous characteristics is an increase in the unpopularity of many social values highly estimated in time of war, and an increase in the popularity of the values somewhat underestimated at that period.⁸⁴

Such, in general, is the powerful influence of war in this field.

K THE INFLUENCE OF WAR ON SCIENCE AND ARTS

Here again the existing opinions are quite opposite. According to the anti militaristic writers war's influence on intellectual progress of all kinds is entirely negative. *Inter arma silent musae*, was said long ago. "To actualize continually the entire capacity of the possible intellect" is possible only "amidst the calm tranquillity of peace" pleads Dante.⁸⁵

War is a selection for the worse, which destroys the more cultivated and leaves the more barbarous. It has always held back mental progress, and at this very day it increases mental stagnation.

⁸³ LOWELL, A. L., *op cit*, pp 223-234. See the whole of Chap V.

⁸⁴ See in Lowell's work a concrete analysis of public opinion after the war *op cit*, Chaps VI-VII.

⁸⁵ DANTE ALIGHIERI *De Monarchia*, translated by Aurelia Henry, Boston, 1904, Chaps II and III.

350 CONTEMPORARY SOCIOLOGICAL THEORIES

Such is a modern formula of the opinion⁸⁶ Another opinion was long ago formulated by J de Maistre Following Euripides and Machiavelli, he says

The best fruits of human nature, arts, sciences, great enterprises, great conceptions, and virile virtues, prosper especially in time of war It is said that nations reach the peak of their grandeur only after long and bloody wars The climax of Greek civilization was reached in the terrible epoch of the Peloponnesian War; the most brilliant period of Augustus followed immediately after the Roman civil wars and proscriptions The French Genius was bred by the wars of the League, and was polished by that of the Fronde All great men of the time of Queen Anne (1665-1714) were born amidst a great political commotion In brief, they say that blood is a fertilizer of the plant which is called Genius I wonder whether they understood well when they say that "*arts are the friends of peace*" Anyhow it would be necessary at least to explain and to clarify the statement because I do not see anything less pacifistic than the periods of Alexander the Great and Pericles, that of Augustus, Leo X, François I, Louis XIV and Queen Anne⁸⁷

These warring periods were marked by an extraordinary progress of science arts, and philosophies, and of all kinds of intellectual achievement A more modern formulation of the same idea is as follows "Unending peace would plunge all nations into a dangerous lethargy" (Valbert, *op cit*, p 692) "The certainty of peace would, before the expiration of half a century, engender a state of corruption, and decadence more destructive of men than the worst wars" (Melchior de Vogue)

It is easy to see the fallacies of either of these opinions We know for instance that Japan, before its reformation, enjoyed a period of peace during almost three hundred years under the shogunate of Tokugawa And yet it did not corrupt it, nor did it render the country incapable of making wonderful progress when necessity came Nations like Switzerland, Holland, Norway, and Sweden have been enjoying peace during the last century, and yet their proportional contribution to the arts and

⁸⁶ NOVICOW, *War*, p 59, Chap VII, NICOLAI, *op cit*, Chaps II-IV NASMITH, *op cit*, Chaps V-VII TODD, *op cit*, Chap XIX

⁸⁷ DE MAISTRE, J., *Oeuvres*, Vol. I, pp 36-37 See the whole of Chapter III there.

sciences has not been less than that of many belligerent countries. We have also witnessed that the last war has considerably checked, at least temporarily, scientific and intellectual activities. There is no doubt also that war exterminates many scientists and literary men. It puts many obstacles in the way of creative intellectual activity. In brief, there is some truth in the statements of the war critics, but not in all of them. If the theory of de Maistre were quite wrong, the facts indicated by him could not have taken place. However, they happened, and, more than that, the correlation between the war periods and the extraordinary number of the great men of genius born in such a period, or immediately after it, seems to exist and is tangible in a much larger number of cases than those which are mentioned by de Maistre.⁸⁸

Furthermore, we have seen that nations have been spending more time in war than in peace. If the influence of war were so deleterious as depicted by its critics, an intellectual progress could not possibly have taken place, but this happened. Furthermore, it is rather obvious that intellect counts a great deal in war. At such a time it is stimulated up to its limits in a specific direction. Its achievements for the purposes of war have almost always been used for quite peaceful purposes, and have contributed to intellectual progress in general. By its strong stimulation, excitement, and extraordinary conditions, the war situation has been responsible for the enlargement of human knowledge. In these and similar ways, war has exerted some beneficial effects on the development of sciences and arts. If there had been no war, we certainly would not have had either the *Odyssey*, *Iliad*, *Mahabharata*, *Macbeth*, or a great many other poems, paintings, sculptures, architectural beauties, songs, symphonies, verses, and other works of art which have been inspired by war.⁸⁹ The same is true of a great many inventions beginning with various arms, and ending with aeroplanes, tanks, and poison gas.

This does not mean that we must close our eyes to the negative effects of war, it means only that the war influence is exceed

⁸⁸ See some data in my *Social Mobility*, Chaps. XXI-XXII.

⁸⁹ See about this point, LEONTIEFF, K., *Visualism & Slavonstvo* (Russian).

ingly complex and cannot be accurately described by a simple one-sided formula of its apologists or slanderers

L GENERAL CONCLUSION ABOUT THE EFFECTS OF WAR

The above survey shows that there is a series of correlations between the war phenomena, taken as an independent variable, and various aspects of social life taken as the dependent variable. Some of these correlations are seemingly certain and more or less studied. Some others, however, have been investigated little as yet, and represent guesses rather than scientific propositions. The authors have philosophized and moralized too much and have studied objectively the facts in this field too little. If sociologists are going to promote our knowledge of war phenomena, they will have to quit moralizing (there are too many people who enjoy this business) and turn to a real study of the phenomena. Otherwise we are doomed to remain in the kingdom of half-truths.

5 WAR'S FACTORS

In the above, war has been taken as an independent variable and its "functions" have been traced. Now we may ask what are its factors or, in other words, what are the "variables" whose "function" is war. What phenomena facilitate the appearance of war and its increase, and what phenomena have the opposite results?

This part especially of the sociology of war and of conflict, has been little investigated. We have dozens of varied theories which try to answer the question, yet the majority of them have scarcely any scientific value. In the first place, we have a series of theories whose answer consists in a mere reference to the "universal law of struggle" or to the "law of the struggle for existence." It is evident that such explanations do not contribute anything. We may grant that such a universal law exists, but the point is why, in a certain society at a certain period, there is no war, and why, in the same society at another period, war breaks out, expands, grows, and after some time, ends. The "universal law" does not help at all in answering the problem. A second variety of theories is represented by numerous "in-

stinctive" theorists. Their general trait is that they look for the ultimate source of war in the field of instincts. Accordingly, we have "war instincts" and "patriotism instincts" as theories of war's causes. The "war instinct" is sometimes regarded as being similar to the "fighting instinct," as in the writings of Nicolai,⁸⁰ but in other cases the two are regarded as something quite different.⁸¹ Other authors indicate a "fighting instinct" or an "instinct of pugnacity" as the source of war, (W McDougall, H R Marshall, P Bovet, and E A Ross)⁸² Some sociologists indicate a "herd instinct" as indirectly responsible for the existence of war (W Trotter)⁸³ Sociologists and psychologists, like Steinmetz, G T W Patrick, W H R Rivers, W A White, and some others indicate several varied instincts responsible for war, regarding it either as an outcome or as a drive for "rejuvenation," stimulated by a superabundance of the social bonds imposed by a social life and various social rules which finally repress the source of life itself, or as a form of relaxation from those conventional rules which through their drudgery, monotony, and repression, tend to turn man into an automaton, or as an outlet for a satisfaction of the innate drives of anger, *wanderlust*, the military spirit, courage the spirit of adventure (*Mut, Wagemut, Grausamkeit*) and so on.⁸⁴ Some others have tried to connect war with hunger and the impossibility of satisfying the primary necessities of man or with an increase in the number of obstacles before such a satisfaction.⁸⁵

⁸⁰ See NICOLAI *op cit*, Vol. I pp 20 ff.

⁸¹ WOODS, F A, *op cit* pp 17 ff.

⁸² McDUGALL W. *Social Psychology* pp 280 ff. MARSHALL H R. *War and the Ideal of Peace*, 1915 pp 96 ff. ROSS E A., *Principles*, pp 44-45. BOVET P., *The Fighting Instinct* N. Y., 1923.

⁸³ TROTTER, W., *Instincts of the Herd in Peace and War* London, 1916.

⁸⁴ STEINMETZ, *Phil des Kriegeres*, pp 233-294. PATRICK, G T W. 'The Psychology of War,' *Popular Science Monthly* 1915 pp 166-168. WHITE W A., *Thoughts of a Psychiatrist on the War and After* 1919 pp 75-87. CECILE G M., *A Mechanistic View of Peace and War* 1916. RUSSELL, B. *Why Men Fight* 1917. CONWAY, M., *The Crowd in Peace and War* 1916. ELTINGE, B. *Psychology of War*, 1915. THORNDIKE E L. *Original Nature of Man* Chap VI. WATSON J B., *Psychology*, Chap VI. PARK and BURGESS *Introduction*, Chap IX. HALL, G S., 'Some Relations between the War and Psychology,' *American Journal Psychology*, 1919. LE BON, G. *The Psychology of the Great War*, 1916. RIVERS, W H R., *Instinct and Unconscious*, Cambridge, 1921.

⁸⁵ SOROKIN, *The Influence of Famine and Food Factor*, Chap VII. BAKELESS, J., *The Economic Causes of Modern War*, N. Y. 1921.

In brief, we have numerous and divergent "instinct" theories of war. Their kernel is probably true, but, unfortunately the majority of them again do not solve the problem satisfactorily. We may grant that a *fighting instinct*, war instinct, or some other drive is the source of war, but does this explain why a society is in a state of war at a certain time, and in peace at another period, or why one society is very belligerent, while another one is relatively peaceful? If the source of war is a certain instinct or drive, it should exist permanently. Granting this, there is still no explanation that would make clear why at some periods it manifests itself, while at others it is ineffective. In order that these hypotheses might be satisfactory, they would have to explain from the "instinct" standpoint the real curve of war phenomena. They must show why, for instance, a "fighting instinct" called forth war in 1914 rather than in 1909, and why certain peoples participated in this war while other nations remained out of it. Why was the war terminated in 1918 rather than in 1915 or 1935? Why have there been relatively peaceful periods in the history of a nation, and other periods crowded with war? The majority of the discussed theories do not even attempt to answer such questions. For this reason their insufficiency is evident.

The same may be said of the majority of the other theories of war factors, which see these factors in "dynastic interests" in "religious heterogeneity," in "economic factors," in the "diplomatic and political machinations, in a lust for domination self-expression, and what not. As far as such theories limit their "explanations" by merely mentioning these factors and by a few considerations of their importance, they do not factually give any valid theory. To hold such a theory they must explain when, why, under what conditions, and in what way their factor is an efficient cause of war, and why, under what conditions, and so on, it has no such influence. In brief, such a theory must "interpret" the real fluctuation of the war curve. It must take the facts of war and correlate them with their factor, showing that it "fits" to the curve of war. Otherwise, such a theory is of no use. Only a very few of the existing theories make an attempt to perform such a factual verification. Unfortunately,

a great many of such theories are defective too, sometimes even more defective than many instinctive theories ⁹⁶

Here we may finish our analysis of what has been said above. So much for the Darwinian school of the struggle for existence and its interpretation.

The fourth important branch of biological sociology is represented by the "instinctivist interpretations" of social phenomena. However, in view of the mixing of "instinctive forces" with other psychological factors in such theories, it would be more convenient to analyze them in the chapters devoted to the psychological school in sociology.

6 GENERAL CONCLUSION ABOUT BIOLOGICAL SOCIOLOGY

In spite of its many defects, taken as a whole, the school has represented one of the most powerful currents of sociological thought, has thrown light on many social phenomena, has given a series of valuable correlations, and has shown many deep factors which lie under the picturesque surface of the social ocean. For these reasons it must be recognized as one of the most important sociological schools. Whether we like it or not, it will exist. The greater and more accurate are the findings of biology, the more accurate are going to be the biological interpretations of social phenomena, and the more powerful influence they are likely to exert on sociological thought in the future. It is useless and hopeless to try to shut the gates of sociology to an intrusion of biological interpretations, as is urged by some "formal sociologists" at the present time. Such an isolation will do no good to sociology, while its harmful results are rather evident. An in-

⁹⁶ As an example we may take E. Hovelague's *Deeper Causes of the War*, London, 1917. Trying to elucidate the causes of the World War, he indicates purely "environmental" factors, such as Prussia's preceding history, its militant character, its militant leaders, "militant Prussian spirit," German philosophy, "belief in superiority," miraculous influence of F. Nietzsche, Treitschke, Bernhardi, and so on. It is needless to say how utterly fallacious the whole theory is. As a matter of fact, under the Hohenzollerns, Prussia had a fewer number of war years than any other big European country. (See the figures in this chapter.) It is fallacious to make only Prussia responsible for the war. It is certain also that among the English, the French, the Russian thinkers, historians, writers, and so on there has been a crowd of apologists for war, struggle, patriotism, nationalism, "militant spirit," and all this sort of thing. In brief, the whole theory represents a political pamphlet much less satisfactory than the above "instinctivist" theories of war.

crease of bad scholastics, useless word polishing, and a sterile terminological discussion, on the one hand, and on the other, a backward "self made" or "home-made" biology *ad hoc* fallacious in its essence, are likely to be the effects of such an isolation. This has happened in the past and it is probable in the future, if such a "formal" claim is carried on. To avoid it, we must follow the findings of biology, taking from them what is really scientific and throwing away that which is "pseudo-scientific." Such is the reasonable course which may be taken by the sociologists in regard to the "biological interpretation" of social phenomena.

CHAPTER VII

BIO-SOCIAL BRANCH DEMOGRAPHIC SCHOOL

UNDER this school I shall survey the theories which assume the demographic factor to be a primary or important "variable," and consequently attempt to interpret social phenomena as a function, or resultant of this factor. By the demographic factor is meant the increase or decrease of the size and density of a population. The qualitative aspect of population will be omitted here since it has been discussed in the chapter on the Racial School.

I PREDECESSORS

The most ancient sources of social thought and the oldest practices of ancient societies, show that human beings were aware, long ago, of the important role played by demographic factors in the field of social phenomena. Both the quantitative and the qualitative aspects of the population problem were appreciated to some degree. As a result, certain social practices arose. Their purpose was either to increase or to decrease the size of the population and to improve its quality. The Biblical admonition 'Be fruitful, and multiply, and replenish the earth' is a typical illustration of a great many ancient ideas and practices destined to increase the population—a condition believed necessary for the continued existence and prosperity of a given society. On the other hand, certain practices and *mores*, such as obligatory celibacy, the killing of old people and babies, prescribed abortion, etc., are found among many primitive societies.¹ These practices, whose objective was to check or to decrease the population, indicate that many societies were somehow aware of a danger of overpopulation. The statement in Genesis which says that Abraham's and Lot's herdsmen and cattle increased to such an extent

¹ See CARR-SAUNDERS, A. M., *The Population Problem* Chaps. I, VII, VIII, IX, Oxford, 1922. REUTER, E. B., *Population Problems*, Chap. III, Philadelphia, 1923. STRANGELAND, C. E., *Pre Malthusian Doctrines of Population*, N. Y., 1908.

that "the land was not able to bear them that they might dwell together, for their substance was great, so that they could not dwell together," and "The Zend-Avesta's" theory of the periodical over-population of the earth,² are typical illustrations of the same fact. With still greater reason it is possible to contend that ancient peoples also understood the qualitative side of the population problem. "Eugenics" is not an invention of the nineteenth century. Thousands of years before our era, eugenics was widely practiced in ancient Sparta and India, in China, and among the Jews, to mention only a few societies.³

There is no need to say that since the appearance of individual social thinkers, a large number of them have paid attention to the factor of population. In their statements they have proposed practically all types of hypotheses which, in a more developed form constitute the leading contemporary theories of population. Confucius, Mencius, Plato, Aristotle, Polybius, Seneca, Cicero, Lucretius, St. Thomas Aquinas, the Church Fathers, Ibn Khaldun, Campanella, Machiavelli, J. Bodin, Luther, Botero, Colbert, W. Petty, Graunt, Justi, Sonnenfels, Zincke, the Cameralists, Ch. Davenant, W. Temple, Holinshed, the Mercantilists, the Physiocrats (Quesnay and others), Bruckner, C. Beccaria, A. Young, F. Brignati, J. J. Rousseau, J. Steuart, Hume, Wallace, Adam Smith, Price, Ortes,—these are only a few names from a long list of those who set forth various theories of population prior

² Genesis, xiii 6. "The Zend Avesta." *The Sacred Books of the East*, Vol. IV, Oxford, 1880, Farg. II 9 ff. "The earth has become full of flocks and herds of men and dogs, and there is no more room for flocks, herds, and men." This led to the necessity of a periodical enlargement of the earth by Yima. "The Zend Avesta" was composed probably about A.D. 325, though its contents are much older.

³ See the chapter about the Racial School, ROPER, A. G., *Ancient Eugenics*, Oxford, 1913. SCHALLMAYER, W., *Vererbung und Auslese*, 2nd ed., pp. 142 ff. SOROKIN, *Social Mobility*, Chap. IX. I cannot agree with Carr Saunders that "the problem of quality did not arouse the same early interest" (as the problem of quantity), *op. cit.*, p. 18. Roper gives a quite sufficient proof that the qualitative side of the problem, at least in the way of trial and error, was understood as early as the quantitative side. A study of *The Sacred Books of the East*, especially of India and China, and the study of the practices of Sparta and other societies, does not leave any doubt that the 'eugenic' side of the problem was understood in the past, perhaps even better than its quantitative aspect. In the *Laws of Manu*, *Brhadspati*, *Narada Gautama*, *Institutes of Vishnu*, and other books of ancient India, the "eugenic" side of the problem is the leading idea of all their contents.

to the time of Malthus (1766-1834) ⁴ After Malthus' epoch-making *Essay on the Principle of Population* (first edition in 1798), there have been few prominent economists, sociologists, political scientists, psychologists, practical reformers, demographers, statisticians, and eugenists who have not discussed the problem ⁵ It is not my purpose to survey all these theories In many of them the number and the density of population are viewed as an effect of other variables, rather than as their cause My purpose is to take only such contemporary theories as interpret the social processes as a function of the demographic factor Taking the principal theories of this type, we shall be able to cover the fundamental generalizations formulated in this field at least

2 ADOLPHE COSTE

There is scarcely any other sociological theory which allots to size and density of population such importance as is done in the theory of Adolphe Coste, a former president of the Statistical and the Sociological Society of Paris I shall begin my survey of the demographic theories with that of Coste, not because his works are especially valuable, or because he originated such a theory, but because of his attempt to make the demographic factor a kind of an all-sufficient key to account for important "social processes" The basic ideas of his theory were laid down before him by M Kovalevsky, whom he mentions as his predecessor, and the originator of his theory, ⁶ by A Loria, Yves Guyot, P Mougeolle, and L Winiarsky, whose works Coste did not know before the publication of his books ⁷

⁴ See CARR-SAUNDERS, *op cit*, Chap I, REUTER, *op cit*, Chaps. III, IV; STRANGELAND, *op cit*, *passim*, SMALL, A, *The Cameralists* HANEY, W H, *History of Economic Thought*, REYNAUD, *La theorie de la population en Italie du XVI au XVIII siècle*, Paris, Lyon, 1904

⁵ The literature is enormous. See the principal theories in REUTER, Chap V THOMPSON, W, *Population A Study in Malthusianism*, N Y 1915 the texts in economics by G Schmoller, A Marshall, F Taussig, E Seligman, R Ely, or any other substantial text, LEROY-BEAULIEU, P, *La question de la population*, Paris, 1913 the treatises on demography by A Oettingen G von Mayr E Levasseur, and others, WOLF, J, *Die Volkswirtschaft der Gegenwart und Zukunft*, 1912, *Der Geburtenrückgang*, 1912 BUDGE, *Das Malthus'sche Bevölkerungsgesetz und die theoretische Nationalökonomie der letzten Jahrzehnte*, 1912

⁶ See COSTE, A, *Les principes d'une sociologie objective*, p 107 Paris, 1899

⁷ COSTE, A, *L'expérience des peuples et les prévisions qu'elle autorise*, pp III-IV, Paris, 1900

The essentials of Coste's sociological theory are as follows

- I There are two fundamental categories of historical facts the social and the ideological phenomena By the "social facts" Coste means the phenomena of government, production, distribution of economic or useful things beliefs, and solidarity By "the ideological" fact he means the phenomena of non practical arts, such as poetry, philosophy, various ideologies, including theoretical and non applied sciences which do not have useful or utilitarian character These two categories of phenomena must be discriminated between very decisively While the social phenomena of government, production, belief, and solidarity are closely correlated with one another in their fluctuation and evolution, 'the ideological' phenomena do not show any close correlation with 'the social phenomena In other words "sociality" and "ideological mentality" are independent from one another Four categories of facts corroborate this statement, according to Coste

In the first place, the absence of a correlation between 'the social and the ideological phenomena' is shown by the fact that the great "intellectuals" or creators of 'the ideological values' have not regularly appeared within the most powerful societies, as would have been the case had there been a correlation between the "sociality" and ideological mentality The ideologies of Christianity, of Buddhism, and of Mohammedanism, appeared among the peoples who were far from being powerful or advanced. A small Greece produced the most wonderful poets, philosophers, intellectuals, and artists But this abundance of ideological mentality did not much influence the sociality of Greece Certainly, it did not make it a strong society The Romans were much more ignorant and less cultured than the Greeks, the Egyptians, or many other peoples, but they succeeded in organizing a wonderful governmental, juridical, military, and social machinery, and in this way, in spite of being poor in the "ideological achievements," they rendered a greater service to the progress of sociality than did the Greeks In the fifteenth and the sixteenth centuries Italy and France were incomparably superior, in regard to "ideologies," to Germany, Holland and England but these

countries were far superior in their commercial, governmental, religious, and political organizations to France or Italy

In the second place, the same absence of correlation is shown by the fact that the great intellectuals have appeared in the epochs of social progress, as well as in those of social decay. In the period of decay in sociality they appear even more often than in the period of political, economic governmental, and religious well being. This could not have happened if the two categories were correlated. In Greece and Rome the most brilliant "ideological" period (of philosophy, arts, poetry, architecture, literature and so on) was also the period of social disorganization and decay. We see the same in Italy in the period of the Renaissance.

In the third place, the absence of the correlation is manifest in the fact that the same race, the same epoch, and the same social conditions give rise to the most different ideological geniuses, and, *vice versa*, similar intellectuals appear under the most different social conditions. The "social" facts of each society are stamped by its racial or national traits, while the "ideological" facts are cosmopolitan, international and free from any marks of the society in which they were originated. If the social and the ideological phenomena were correlated, this could not have happened.

In the fourth place, in the movement of the ideological phenomena there is no continuity, permanent progress nor regularity. They appear and disappear whimsically, flourishing and decaying, while in social phenomena there is continuity, regularity, and mutual correlation.

Since the "ideological" facts are not influenced by the "social" phenomena, the latter are independent of the former, too. "Exterminate one or two dozen of the ideological Geniuses, and theoretical science and the non useful arts would disappear." But this would not change the "social phenomena" at all. "The ideological achievements, whether they be the Pythagorean theory of numbers, Plato's theory of ideas, Epicurus' theory of atoms, the monadology of Leibnitz, the Newtonian law of gravitation, or the Lamarckian and Darwinian theory of evolution, are not known to the masses, and have no practical influence on them. If these theories should disappear, this would not noticeably in-

fluence the course of the "social phenomena" They are quite different from the social facts, which, besides being always useful, are the result of mass-activity, and of common needs, mutual suggestion, interstimulation, and division of labor⁸ The ideological phenomena are purely individual creations, and remain a possession of the few only. All this shows their difference and independence

2 Since "the social and the ideological facts" are quite different, they must be studied by different sciences the social facts by sociology, and the ideological facts by "the ideology" This would be a science somewhat similar to psychology but radically changed The physiological part should go into biology, and the non physiological part would be transformed, for the present, into "ideology"⁹

3 Correspondingly, in the classification of science sociology must be put after biology, as was done by Comte, while ideology must follow sociology¹⁰

4 Turning to the social facts,—government, production, beliefs, and solidarity—Coste finds that they follow a definite sequence of five stages in their evolution, each stage being correlated with the others The essentials of his theory of social evolution are given in the table on page 363¹¹ Putting the amount and the concentration of the population at the basis of the classification, Coste gives the stages in the social evolution of the peoples who passed by purely animal stages in the same table From this scheme it follows that in the development of the principal forms of social phenomena there is a definite sequence, that these forms are correlated with one another and that there is a linear historical tendency toward a progressive division of social functions and an increase of free cooperation, at the cost of a progressive decrease in inequality

5 If we ask now what factor is responsible for the above evo-

⁸ *Principes*, Chaps II XXII *L'expérience* Chap I

⁹ *Principes* Chaps III IV *L'expérience*, Chap II

¹⁰ *Principes*, Chap V Coste's classification of sciences is a modified classification of August Comte see p. 57

¹¹ *Ibid* Chaps IX XII XIV See the Table on pages 150-151 *L'expérience*, Table on pp 584-587 Practically the whole volume of Coste's *L'expérience des peuples* is devoted to the description of these five principal stages of social evolution

Stages According to the Mass and the Concentration of the Population	Social Activities in Their Evolution of Differentiation and Their Character	Type of Solidarity and the Tendency Toward a Decrease of Inequality
I <i>Bourg</i>	Lack of division of social activities	Absolutism of family, and supremacy based on birth
II <i>City</i> superposed on <i>bourgs</i>	<i>Division of functions</i> Military government, socio morphic and polytheistic religion family production	Military religious supremacy Castes The only property land
III <i>Metropolis</i> superposed on cities	<i>Government</i> Two authorities military and civil <i>Religion</i> Theistic and monistic, plus mathematical science <i>Production</i> Family system manufacture, commerce	Supremacy of state embodied in a prince and his officials classes and privileges <i>Property</i> land and capital
IV <i>Capital</i> superposed on the great cities	<i>Government</i> Three authorities military administrative, legislative <i>Religion</i> Half rational, mathematical science, physical science <i>Production</i> Family manufacture machine-facture better transportation	Supremacy of wealth based on individualism and in equality of inheritance and instruction <i>Property</i> land, capital, mobile values
V <i>Center of Federation</i> superposed on the capitals	<i>Government</i> Four authorities military administrative legislative judicial <i>Religion</i> Rational science mathematical, biological <i>Production</i> Previous forms plus "vivification" (utilization of vital forces)	Supremacy of free associations, tending to the supremacy of intelligence and the equality of protection for individuals <i>Property</i> the preceding forms, plus patents on inventions and shares

lution of social phenomena, the answer is *the growth of the population and its density*. Animal societies are stagnant because they are limited numerically. Human societies are progressive because they are ever increasing in their size and density. This leads to an increase of interaction, to its intensification to an exchange of experience, and to its accumulation and transmission from generation to generation. The first great organized societies appeared where the concentration of the population (the valley of the Nile, in Chaldea, in India, in China) was great. The first brilliant civilizations emerged in Greece, Tyre, Athens and Carthage, for the same reason. The first great military unification of societies by Babylon, Egypt, and Rome were made possible by the same factor of abundance of population, and its integration into compact social bodies. On the other hand, when the size and the density of a population decreases, the progress of a civilization stops, as happened after the depopulation of the Roman Empire and during the first centuries of the Middle Ages. Omitting other arguments of Coste in favor of his hypothesis, we may say that the

numerical increase of the members of a society is the primary cause of its whole evolution. The increase of a unified population leads to an increase of social differentiation and to a division of labor and of social aptitudes facilitating the communication of various parts of the society, and making possible a better and more powerful coordination of the individual actions and a more and more accurate representation of the unity of natural laws.

Soil, climate, and race may, to some extent, facilitate and check human aggregation, but they are not the primary factors of social evolution.¹²

6 Logically developing his idea, Coste finally tries to establish "the sociometrika" to measure the relative power of different societies. Since the mass and the density of a population are the primary factors of sociality, the social powers of various societies could be approximately measured through the number of its population and its density measured by the concentration of the population or the proportion of the population of the big and the small cities, to the whole population of the society. Combining

¹² *Principes*, pp. 95-103. *L'expérience*, *passim*, and pp. 588 ff.

these criteria, Coste gives the following final index of the social powerfulness of various nations ¹³

Table I

Table II

Power of the States (on the basis of the population at the end of the nineteenth century)		Sociality or Social Cohesion
States	Index of National Power ¹⁴ (France taken 100)	Index of Sociality ¹⁵
A Great States		
Great Britain	155	152
Russia	136	49
Germany	121	89
France	100	100
U S A	70 or 74	44
Japan	73	60
Austria Hungary	69 or 70	61
Italy	49	60
Turkey	45	70
Spain	36	77
Average for ten great states	94	71
B Small States		
Belgium	19	112
Holland	14	107
Sweden Norway	11	60
Rumania	9	64
Portugal	9	67
Switzerland	5	64
Average for six small states	13	82

Since Social Power is equal to the size of the Population multiplied by Sociality (density)—Social Power = Population \times Sociality—it follows that a nation's sociality is equal to its so-

¹³ The methods of computation are somewhat different in *Principes* and in *L'expérience*. Correspondingly different are his indices also. I give here the table from *L'expérience* because, according to Coste, it is more accurate. See *Principes*, Chap. XV, *L'expérience*, pp. 591 ff.

¹⁴ *L'expérience*, pp. 602-603.

¹⁵ *Ibid.*, p. 606.

cial power divided by the population— $\frac{\text{Social Power}}{\text{Population}} = \text{Sociality}$

Table II gives the indices of the sociality of various nations computed according to this formula

Such are the essentials of Coste's sociological theory

Criticism—Taken as a whole, Coste's theory represents a mixture of sociological objectivism and unbridled speculation, correct observations and fantastic generalizations

1 His discrimination of "the social and the ideological phenomena" is vague and doubtful. One cannot understand why he puts some beliefs, arts, and theories within the category of "social facts," while some others are called "ideological facts,"¹⁶ or why the same "ideologies" like Buddhism and Christianity sometimes function as the "social", sometimes as the "ideological" phenomena. The criterion of "practical usefulness" does not help, because a great many purely abstract theories, like the majority of the theories of physics and chemistry, are, according to Coste, "ideological" phenomena. However, only a mentally blind man could deny the great practical utility which has come out of such abstract theories. On the other hand, a considerable number of beliefs which Coste regards as "the social, useful phenomena" seem to fail in showing their usefulness. It is also hard to see why religion is put among the "social" while arts and

¹⁶ Coste's attitude in this respect is shown by the following quotation: "The Egyptians and the Babylonians *knew* how to build enormous constructions and how to solve practical, difficult problems long before algebra, geometry, and mechanics were established. Hannon encircled Africa, Himilcon discovered Great Britain, Columbus, Vasco de Gama, and Magellan crossed the Atlantic the Indian, and the Pacific Oceans before Copernicus, Newton, and Kepler founded astronomy. The practical art of navigation preceded the science of astronomy as the social inventions preceded the ideological ones. In the same way agriculture, cattle breeding, medicine, and surgery did not wait until biology was founded by Bichat and Claude Bernard. Jenner made his discovery of vaccination in 1776,—a century before Pasteur's microbiology found its explanation."

It goes without saying that science, after its establishment, reacts on useful applications through the generalization of empirical inventions, and the formulation of general laws. Ideology may be very useful for a society but it does not precede it, and does not control it at all." *L'expérience*, p. 6. The table of multiplication and arithmetical rules seems also to be "ideologies," according to Coste. His fallacy is clear from the above. His so-called applied science is nothing but a preceding and a less generalized stage of knowledge confronting its later and more generalized stage. To differentiate one from the other, as something quite different qualitatively, is evidently fallacious.

sciences are placed among the "ideological" facts. From the standpoint of usefulness, science scarcely could be recognized as less useful than religion. Further, if we take from religion its cult, arts, ceremonies, architecture, paintings and music, I wonder how much there would remain of religion and its useful efficiency. More than that, if the ideological creations were really useless, they could not have survived, as useless things. In the process of elimination of values and activities, they would have been eliminated long ago. Yet they still exist and do not show any symptom of disappearance. There is scarcely any need to dwell longer on this point. Coste's classification is unsupportable. His estimation of science, and of a great many other "useless" things is fallacious. In brief, this part of his theory, and the discrimination of sociology and ideology resulting from it, are erroneous. The only sound point is Coste's insistence on the absence of a close connection between "sociality" and "mentality." As a counterbalance against the one-sidedness of the sociologicistic theory, which explains the whole mentality as a product of social interaction or sociality, Coste's theory may be of service. But again, he, like L. Winiarsky,¹⁷ falls into an opposite error. Both

¹⁷ L. Winiarsky pretends that he was the first who indicated the antagonism of sociality and mentality. See L. WINIARSKY'S *Réclamation au sujets des principes d'une sociologie objective* de M. A. Coste. *La revue socialiste*, Vol. XXXI, 1900, pp. 419-421. In his interesting paper *Essai d'une nouvelle interprétation de phénomènes sociologiques*. *Revue socialiste*, Vol. XXIV, 1896, pp. 308-328, 430-454. Winiarsky tried to show first, that as a biological type, those organisms are the most superior which are the most differentiated and the most integrated; second that the social life through division of labor tends to decrease this differentiated integrity of an organism, and to substitute a one-sided 'professional' type for it; third that through this it favors the survival of narrow specialized types at the cost of the universal many-sided type; fourth, that, through this, social life and social cohesion hinder the development of mentality, intelligence or intellectual genius. The most important characteristic of a real genius is his universality, many-sidedness, and all-embracing mind. These become more and more impossible through social differentiation. Fifth, an ideal sociality means an ideal mental stagnation, and leads to it. These statements are supported by the fact that among the animals, those who live in societies are inferior to the varieties of the same species which live an isolated life; that societies with a strong social cohesion are mentally dull, while the societies with a less strong social cohesion are superior in intelligence; and that, in the history of the same society, the periods of social disorganization are marked by an extraordinary intellectual achievement and an extraordinarily abundant number of geniuses, while the periods of strong social order are marked by a decrease in intellectual activity, organized 'mob-psychology' and by mental stagnation. From this, Winiarsky concludes that the progress of social

authors are right as far as they contend that human intelligence and mentality cannot be accounted for completely through social conditions. They are right also in claiming that the correlation between "sociality" and "intelligence" is not close, and not always positive. Sometimes "progress of mind" and progress of "social cohesion" are in conflict. Within these limits, their theory is generally valid. It conspicuously shows the fallacies of the sociologistic and the solidaristic schools, which insist upon a complete parallelism in the development of mentality and sociality, making the former a mere result of the latter. (See chapter about the sociologistic school.) But both authors are wrong as far as they regard mentality or "ideology" as something quite independent from the "social" phenomena of Coste or the "sociality" of Winiarsky. Even the fact of a greater intellectual activity in the periods of social disorganization points to a correlation between sociality and mentality, mentioned by Winiarsky. As I tried to show elsewhere, it is easily explained through social conditions. In addition, my study led to the conclusion that there are also limits in this negative correlation. Social disorganization which goes too far, leads to an intellectual decay instead of

cohesion and gregariousness leads to a lowering individual mentality, to a decrease in the number of geniuses and to a kind of mental sterility. Such are the essentials of his study and they are indeed similar to the theory of Coste. Winiarsky's claim that he originated this theory however, is not valid. Twenty years before his paper came out this same theory, only in a much better form, was published by N. K. Mikhailovsky in his *What is Progress? Darwinism and Social Sciences Struggle for Individuality*, and other works. His name is not mentioned by Winiarsky but from the paper I conclude that Winiarsky is probably a Pole, reads Polish, and may be even Russian. It is probable that Winiarsky's theory was elaborated not without the influence of Mikhailovsky for even his terminology is practically identical with that of Mikhailovsky. To this it is necessary to add that the ineffectual rôle of ideologists and ideologies in Coste's sense was indicated many centuries before by a great many authors. It is enough for us to remember Machiavelli's contemptuous estimation of ideologists and ideologies. More recently the same opinion was held by Napoleon. Furthermore many thinkers like Fustel de Coulanges, many times stated the striking inefficiency of ideas and theories for the betterment of human existence.—DE COULANGES, F., *Histoire des institutions politiques de l'ancienne France*, Vol. I, p. 200. Finally *in its own way* the same idea is maintained by the Marxian school of the economic interpretation of history. These remarks are sufficient to show that neither Coste, nor Winiarsky nor anybody else among the sociologists of the end of the nineteenth century, can claim the privilege of originating the above, or practically any other theory. They have only been developing that which was known many centuries even thousand of years ago.

an intellectual blossoming¹⁸ This shows that the partial truth which is in Coste's statement is practically submerged in the greater fallacy of his sweeping generalization Furthermore, if the ideological phenomena are independent from the social phenomena (and also from race, geographic environment, climate, and soil), one wonders on what they are dependent Should we conclude that they represent a miracle? It would be a waste of time if I were to array here the long series of other objections against the discussed proposition

2 As to Coste's theory of the stages of social evolution we may pass it without discussion It represents a variety of "the laws of evolution" or "historical tendencies" which, after Comte's "law of the three stages," became very fashionable At the present moment it may be enjoyed by freshmen only Neither the supposition of a similarity in the social evolution of various peoples, nor the linear conception of evolution consisting in a definite sequence of certain "stages", nor the optimistic, but quite speculative prophecy of the future millennium toward which "the evolution" is leading, have ever been proved and they seem to have lost their fascination for contemporary social thinkers All such theories have been nothing but a kind of metaphysics (See the chapter about the linear and cyclical conception of the social process)

3 It is curious to note that the fundamental point of Coste's theory—the primacy of the factor of population growth—remains almost uncorroborated by Coste He puts it flatly, gives a few of the mentioned illustrations, and that is all This naturally makes us conclude that he has not proved the thesis Such dogmatism naturally entitles us to leave it without discussion as a thesis which has not been corroborated

4 This may be done still more easily because Coste's "Sociometrika" shows conspicuously a fallacy in his theory É Levasseur rightly remarks that, according to Coste's criterion, the

¹⁸ See SOROKIN *Social Mobility*, Chap XXI This, by the way, once more shows the necessity of finding the limits and optimum point of sociological correlations When an author fails to indicate the limits to which a correlation goes, and flatly states that it is positive or negative, and that with an increase of A its function B will increase (or decrease), he is bound to make a fallacy, because there are few cases, if any, where a correlation goes beyond all limits

Shantung province in China, with an average density of population of 221 should be much more civilized and powerful than France, because France's average density is only 73. Such a conclusion will scarcely be accepted by many.¹⁹ I doubt also whether there are many sensible people who would agree with the indices of power and sociality of various nations given above. The years following the publication of Coste's works and the years of the World War seem to have disproved Coste's tabulation. Such a "pragmatic" test is one of the most certain criteria of the validity or fallacy of "an ideology." In this case it testifies against Coste's theory.

Nevertheless, the above does not mean a complete denial of the value of Coste's books. In spite of the fallacies, they are suggestive and stimulating. Coste's one-sidedness is a good anti-poison against the one-sidedness of other theories. His statements are always clear, and are not wrapped in the thick cloak of abstract phraseology and conceptual definitions under which many "thinkers" hide a lack of thought. Coste is a thinker, and a good one, but, unfortunately, one-sided.

Let us now pass to other more mature, though less sweeping theories which try to establish a correlation between the demographic factors and other social phenomena.

3 SIZE AND DENSITY OF THE POPULATION AND VITAL PROCESSES

Can the size and the density of a population be a factor in the birth, death and population growth rates? Is there any correlation between the first and the second series of phenomena? The question has been answered positively by many a prominent investigator. Let us notice in the first place the influence of the mentioned demographic factors on the death rate.

Demographic Factors and the Death Rate—Already P. E. Verhulst, Dr. W. Farr, H. Westergaard and several other demographers, have indicated the existence of a positive correlation between the density and the death rate of a given population.²⁰

¹⁹ LEVASSEUR, É., "La repartition de la race humaine," *Bulletin de l'Institut International de Statistique*, Vol. XVIII, 2-e. livr., p. 62.

²⁰ See VERHULST, P. E., "Recherches mathém. sur la loi d'accroissement de la population," *Nouveaux mémoires de l'Académie R. des Sciences de Bruxelles*,

Later on, a series of investigators such as R Pearl, T H C. Stevenson, Reed, S L Parker, J Brownlee, A Drzwina and G Bohn, A Bowley, and G U Yule have shown that there is at least a *tendency* toward an increase in the death rate with an increase in the density of the population, providing other conditions are more or less constant ²¹

The methods of obtaining these correlations, and of measuring the density of the population, have varied greatly, beginning with the experimental methods used in regard to *Drosophila* and some other organisms (by Pearl, Parker, F Bilski, K Semper, Drzwina, G Bohn and others), and ending with various statistical methods applied to a human population. If, in the experimental works with *Drosophila*, the density could be measured accurately, and other conditions could be controlled, the same could not be said of a human population. To find an accurate criterion for the measurement of its density is very difficult. This explains the variety of methods used for this purpose. Some authors, like Dr Farr, measured the density by the number of persons per unit of area, or (like Dr Brownlee) by dividing the population of an administrative district by its area. Some others, like T T S de Jastrzebsky, A Bowley, and R. Pearl, measured it by the number of persons per room or by the indices of "crowding" and "overcrowding." Some other investigators have measured the density through the per capita wealth of the population. Whatever the methods employed, the authors properly recognize that at best they may give only an approximate index of the density of population. I mention this to show how

1845, t XVIII, pp 1-38 'Deuxième memoire sur la loi d'accroissement de la population,' *ibid*, t XX, 1847, pp 1-32 FARR, W, *Vital Statistics* Stanford, 1885, pp 172 ff 'Causes of the high mortality in town districts, *Fifth Annual Report Registrar General, of Births, Deaths, and Marriages in England*, 2nd ed, pp 406-435 'Effects of Density of Population on Health,' *Supplement to the Thirty-fifth Annual Report of the Registrar General, 1875*, pp XXIII XXV, WESTERGAARD, H, *Die Lehre von der Mortalität und Morbidität*, pp 455 ff, Jena, 1901

²¹ PEARL, R., *The Biology of Population Growth*, *papers and Chap VI*, N Y, 1925 BROWNLEE, J, 'Density and Death rate Farr's law,' *Journal of the Royal Statistical Society* 1920 pp 281-283 BOWLEY, A, 'Death rates Density, Population and Housing,' *Journal of the Royal Statistical Society*, 1923, pp 516-539 YULE, G U, 'The Growth of Population and the Factors which Control It,' *ibid*, 1925, pp 23 ff STEVENSON, T H E, 'The Laws Governing Population,' *ibid*, 1925, pp 67 ff see other references in these works

great are the difficulties to be overcome in obtaining a valid association. To give an idea of the results obtained I shall insert a few figures. Here is the table obtained by the simplest statistical method used by Dr W. Farr.²²

Number of Deaths Annually per 100 000 Population in England	Number of Inhabitants per One Square Mile
1 270	138
1 345	149
1 448	187
1 541	214
1 647	307
1 735	435
1 855	662
1 935	1 281
2 043	1 803
3 300	19 584

The density of the population increasing, the death rate increases also.

Dr Bowley's (1869-) coefficients of the correlation between the death rate and various indices of the density of the population in England give an idea of the results obtained by a finer method of statistical analysis. The coefficients of correlation of the standard death rate for specified parts of England with a specified criterion of density are as follows.²³

	London	South England	North England	Black Country	All Districts
With log. of density	635	104	429	268	246
Persons per room	842	198	477	312	581

²² *Supplement to the Fifty fifth Annual Report of Registrar General etc.* 1895 p. xlvii.

²³ BOWLEY *op cit* p. 522 Table I. In the table there are given more detailed coefficients of correlation with crowding and overcrowding indices of density of the death rate and infant mortality, and corresponding regression equations.

These, and the other studies mentioned, seem to suggest that a positive association between the population density and death rate exists. However, in spite of the considerable probability of such a correlation, the corresponding data suggest that either the association exists only within a definite range of density beyond which it becomes intangible, or the effect of the density is so weak as to be overcome by the interference of other factors. There are also the possibilities that the correlation is due not so much to density, properly, as to poverty and similar factors co-existing usually with 'crowding' and 'overcrowding', or that the sum total of all these considerations is the cause. That the correlation may exist only within definite range of the density, beyond which it tends to disappear, is supported by Bowley's data concerning the rural district of England (*Ibid* p 535). In the south of England and Wales the correlation of the death rate with the number of persons per room is quite insignificant (0.05 and 0.16). That the possible influence of the density on the death rate of the population may easily be annulled by other factors is shown by the fact of an all European decrease in the death rate, especially since the second half of the nineteenth century, in spite of the great increase in the density of the population in these countries²⁴. That these coefficients of correlation are a result not only of density but are perhaps even more due to poverty or to sanitary and other conditions masked under the criterion of density, is shown by the fact that the coefficients vary greatly in different parts of England though the conditions of density are approximately similar. While the coefficient for London is high it is quite low for South England and the Black Country. This seems improbable if there were no 'other variables' operating under 'the density' as Professor Bowley himself and Dr Greenwood indicate²⁵. These considerations explain why the above correlation is often intangible. For instance,

²⁴ See the proper statement and the data in YULE *op cit* pp 24-27. The death rate has persisted in falling in spite of the increasing density of every country for which we have data. Other influences have been much more important than the density of population. See also the remarks of Dr Dudfield concerning this *Ibid* pp 540-541.

²⁵ See *op cit*, p 535, Greenwood's remarks on p 542, and A. Watson's remark on p 544.

T J Le Blanc's study has shown that Farr's law does not hold in regard to the urban and the rural population of the United States²⁶ From the above it seems reasonable to conclude that, while the existence of a positive correlation between the density and death rates is probable, we still do not know exactly how close it is, nor what part of the coefficients is due to density, and what to other factors acting under its cover Dr Greenwood says rightly

We can decide between the various explanations (of these coefficients) only after doing more and more work of this kind and bringing other variables into the balance²⁷

Size and Density of the Population and Birth Rate—What has been said of the association between the size and density of the population and the death rate is true of that between the size and the density of the population and the birth rate A series of prominent investigators have claimed that these phenomena are negatively correlated They maintain that an increasing density and size in a population as such, regardless of a lack of necessities, tend to decrease the fertility and birth rate Recently this theory has been set forth by Dr R. Pearl (1879—) in a series of his, and his collaborators', works²⁸ This conclusion has been supported mainly by Dr Pearl's experiments with *Drosophila* and fowls The fowls in this experiment were handled in flocks of 50, 100, and 150 each The pens in which they were kept were constructed in such a way that in the flocks of either 50 or 100 birds, there was an equal allotment of 4.8 square feet of floor space per bird, and other conditions were also equal Therefore, if there happened to be a difference in the number of eggs laid in each flock per bird, this would be due to the factor of the flock size (50 and 100 birds) exclusively In the flock of 150 birds there was an allotment of 3.2 square feet of floor space per bird If there happened to be a difference in the number of eggs

²⁶ See LEBLANC, T J, "Density of Population and Mortality in the United States," *American Journal of Hygiene* Vol IV, 1924 pp 501-558

²⁷ *Journal of Royal Statistical Society* 1925 p 542 See further Sir George H. Knibbs sound statements in "The Laws of Growth of a Population" *Journal of Amer Statist cal Association* Vols. XXI XXII

²⁸ See PEARL, R., *The Biology of Population Growth*, Chap VI see there other references.

per bird in this flock, it would be due to the factor of the density and size of the flock. The experiment was carried on during several years. The results are as follows. Mean annual egg production for the years of 1904-07 is for the 50-bird pen, 129.69 per bird, for the 100-bird pen, 123.21, and for the 150-bird pen, 111.68. Thus the results show that the mere factor of the size of the flocks influenced the fertility of the fowls negatively. The same influence was shown as the density of the bird-population increased, as shown by the difference in the number of eggs produced in the 50, 100 and 150-bird pens.²⁹ Similar effects were yielded by the experiments with *Drosophila*. Here also the "rate of reproduction varies inversely with density."³⁰

Similar results were obtained by some other investigators in their experiments with tadpoles (Bilski)³¹ and other organisms.

Dr R. Pearl thinks that the same must be true in regard to human population. However, the impossibility of obtaining an accurate measurement of its density makes it exceedingly difficult to prove the rule. Pearl made an attempt to verify the rule on the population of 132 American cities through the correlation of the birth rates, and the size and density of their populations. Measuring the density in various ways, he has obtained but a very slight correlation, the coefficient of the partial correlation between birth rate and density (as measured by the number of persons per acre) being -131 ± 0.58 . On this basis Dr. Pearl concludes that in the studied urban population "the real net correlation between the birth rate and density is of the same character fundamentally as that we have found in experimental populations of flies and hens." The only difference is that among the human population, the influence of density upon the birth rate seems to be less marked than in the case of lower animals.³² Dr. Pearl foresees a possible objection to his conclusion, in the well known fact that the density, measured by the number of persons per room, is positively correlated with the birth rate. In many cities

²⁹ *Ibid.*, pp. 141 ff.

³⁰ *Ibid.*, pp. 133 ff. Notice how the experiments were conducted and the tables and diagrams.

³¹ Bilski, F., 'Über den Einfluss des Lebensraumes auf das Wachstum der Kaulquappen,' *Pflüger's Archiv*, Bd. 188, pp. 254-272.

³² *Ibid.*, pp. 153-155.

the districts with a greater number of persons per dwelling show a higher number of children per family, or per 1000 population, or per married woman, than the districts with a less number of persons per dwelling or room³³ Correlating the number of persons per dwelling with the birth rate, Pearl himself finds the coefficient or correlation 456 ± 046 , which is much higher than his above coefficient, and with a meaning opposite to it He, however, declares this correlation false In his opinion, it is due to the physical and economic impossibility of obtaining a sufficient surplus of dwelling houses for new babies For this reason he discards it as fictitious, as "a mere mechanical consequence of putting more new babies into a lot of containers comparatively inflexible in respect of both number and size"³⁴ In spite of this explanation, the very fact that among the human population Pearl's coefficient of negative correlation is low, that the method of his measuring the density by the number of persons per acre is very crude³⁵ and scarcely more adequate than that of measuring by the number of persons per room, that numerous studies (D Heron's, Snow's, Pearson's, Johnson's, and others) have shown a greater fertility of the families living in crowded and overcrowded dwellings than that of the families living in less crowded houses,—in view of these and similar facts, the problem of the influence of density or size of the human population upon its birth rate, must still be regarded as open Even Pearl's study shows that the influence at the best is on a borderline between the tangible and the intangible

Density of Population and Growth of Population—A natural conclusion from the following studies of R Pearl and others is that the size and density of the population greatly determine the rapidity of population growth In other words, the rate of

³³ Recently the same result was obtained by T T de Jastrzebsky "Changes in the Birth Rate in London, *Journal of Royal Statistical Society* 1923, Tables I-IV, pp 40-43 Grading the population of London into 21 groups according to the number of rooms per person (from 65 to 141 rooms per person) he shows that fertility per 1000 married women, or standardized fertility, or "effective" fertility, or crude birth rate goes down as we pass from the more "crowded" or dense to the less crowded and dense districts

³⁴ PEARL, *op cit*, pp 155-157

³⁵ See Bowley's appropriate criticism of this method in his quoted paper, pp 516-517 See Knubbs sound criticism of Pearl's theory, *op cit*, *passim*

population growth is a function of the size and density of the population itself. This is the essence of the so called 'logistic law of growth of population'. Since the birth rate decreases and the death rate increases with an increase in the size and the density of the population living in a limited area the result is that, with an increase in the size and the density of the population its rate of growth has to decrease. When, in a given limited area, the population reaches a point of saturation, it becomes stagnant. When a new invention or an expansion of the inhabited area occurs, and results in less density, the growth of the population may start again and follow the cycle passed through before. Such is the essence of "the logistic theory" in its primitive form. It was formulated at least seventy years ago by Verhulst (see his works). Later on, this cycle was outlined by several investigators, among them Dr T. H. Stevenson (see his paper in *Journal of Hygiene* April 1904), and finally it was rediscovered and perfected by R. Pearl and his collaborators. In his own non-mathematical formulation, the logistic law of population growth runs as follows:

Growth occurs in cycles. Within one and the same cycle and in a spacially limited area or universe growth in the first half of the cycle starts slowly but the absolute increment per unit of time *increases* steadily until the mid point of the cycle is reached. After that point the increment per unit of time becomes steadily *smaller* until the end of the cycle. In a spacially limited universe the amount of increase which occurs in any particular unit of time at any single cycle of growth is proportional to two things viz (a) the absolute size already attained at the beginning of the unit interval under consideration and (b) the amount still unused or unexpended in the given universe or area of actual and potential resources for the support of growth.

Under (b) should be included everything which may change the amount of necessities for a population as for instance inventions, potential development of transportation power resources etc. The law is valid only for a limited universe with a constant (b). When there is a new invention increasing potential and factual resources of the population it breaks the limits of the universe and gives a check to the cycle of the growth which would have

been followed had (b) remained constant. In other words, the law, like many other scientific laws, is valid only under the indicated circumstances.³⁶

R. Pearl, G. U. Yule (1871-) and several other statisticians have tried to compare the factual number and the factual rate of the growth in England's population, the United States of America's, France's, and of some other countries during the nineteenth and the twentieth centuries, with the number and the rate of the growth which had to be according to the mathematical formula of the "logistic law." The results of the comparisons are very near to one another.³⁷ On the basis of the same formula, they have made a computation of the future growth of the population in various countries, providing that (a) is well known and (b) remains constant. Finally, guided by the same law, they try to explain the movement of the population, especially the trend of the falling birth rate, in the Western countries. The essence of this explanation is as follows. During the nineteenth century the population of Western countries rapidly increased, growing in size and in density as it approached the limit of the population within its area ("the point of inflexion" of the curve). Because of this reason, its further growth would naturally be slower. This could be attained either by an increase in the mortality, or by a decrease in the birth rate, or by both ways. Thanks to the progress of science and other factors, the mortality rate of Western countries has been decreasing rather than increasing. As Dr. Yule remarks, "it has behaved as an independent variable." Therefore, according to the law, there should be a decrease in the birth rate. This is what really has happened. Hence, the falling rate of births within these societies itself behaves according to the logistic law and once more corroborates its validity.³⁸

Such are the essentials of the logistic law of the growth of population in which growth is regarded as a function of the size

³⁶ PEARL *op cit*, p. 22. See chapters I-III. See also YULE, *op cit passim*.

³⁷ See the tables in PEARL *op cit* Chaps. I-VI. *Studies in Human Biology*, *passim* and pp. 567 ff. BOWLEY, A. 'Births and Population in Great Britain,' *The Economic Journal*, 1924, pp. 188-192. WOOLSTON, H. B., 'The Limits of American Population,' *Social Forces*, Sept., 1925, pp. 5-16.

³⁸ See YULE *op cit*, *passim*. PEARL, *Studies in Human Biology*, *passim*, and *The Biology of Population Growth*, *passim*.

and the density of the population itself. Being in its essence a better restatement of Malthus' laws, the logistic law is probably one of the valuable scientific formulas discovered in this field after Malthus. It has shown that among the factors controlling the movement of population, the population size and density are to be taken as one of the most important factors. The law helps us greatly in an understanding of the complex processes of the fluctuation of the death, birth, and growth rates of a population. In brief, its scientific value is beyond doubt. This, however, does not mean that the law is sufficient to account for all the fluctuations in the growth of a population, or that it gives a certain basis for predicting the future trend and size of a definite population, or that it even quite satisfactorily explains the changes in the movement of the vital processes. In the first place, the comparison of the actual and the computed growth rates of the population in various countries during the nineteenth century has shown, as Bowley rightly says, considerable discrepancy, in each decade the discrepancy being above one million. In the second place, as Bowley says further, "the justification for the logistic form is purely empirical, we are asked to accept it because it does give results which agree with the records of certain populations." But from this standpoint there are several other formulas which suit the actual population growth, as well as the logistic formula.³⁹ In the third place, Dr. Stevenson⁴⁰ seems to be right in indicating the fact of a simultaneous downward trend of the birth rates in many European countries whose populations are at very different phases of their development, and are dissimilarly situated on their various logistic tracks. Since, in spite of this difference, all these countries have shown a similar downward movement in the birth rate, this seems to be due to some other than "the logistic" factors. In the fourth place, since the law is valid only when at least (b) is constant, any change of (b), whether it is a new invention, or some extraordinary catastrophe, like a great war, revolution, or epidemic similar to the Black Death of

³⁹ See Bowley's remarks in *Journal Royal Statistical Society*, 1925, pp. 76-80.

⁴⁰ See Stevenson's criticism in his quoted paper, *ibid.* 1925, pp. 69-75. See there also the critical remarks of Beveridge and Brownlee who are inclined to explain the falling rate of birth through the popularization of contraceptive means since 1870 or 1880.

1348, or any other change in (b), calls forth a change of the limit for the population, and in this way upsets the prediction of the formula⁴¹ With these limitations, the scientific value of the law must be recognized It has helped us to find a proper understanding of the correlation between the size and the density of the population and the rate of its growth However, its help is much more moderate than its proponents assure us

Such are the principal correlations of the demographic factors with the vital processes as set forth by various investigators

4 SIZE AND DENSITY OF POPULATION AND MIGRATION

As the density of a population increases, in order to subsist it must either improve its methods for the production of necessities, make their distribution more equal, get an additional means of subsistence through the military plundering of other societies, migrate to some other less populated countries or, if these outcomes fail to be realized, then the population must decrease its birth rate or increase its death rate in order to reduce its density We shall see further that an improvement of the technique of production sometimes happens, but not always We have also seen that the eventual outcome is often found in the checked increase of the population through a decrease of the birth rate or an increase in the death rate (the logistic law) But, again, this outcome does not always take place in a sufficient degree Sometimes a solution is found in the migration of a surplus of the population to, or a military plundering of, other countries This explains the probable existence of a correlation between the fluctuation in the density of the population, and migration, or war phenomena The existence of such a correlation has been indicated by a series of investigators In regard to migration, the corresponding theories may be summed up as follows

First Proposition—In the history of the same society, the periods of rapid increase in the density of population are followed by an increase in emigration from the country, and by an inten-

⁴¹ See this point in H. Woolston's quoted paper see also L. Ayres' criticism of the law in the *New Republic* Vol XLV, pp 223-224 Jan. 13, 1926 See other weak points of the theory in Knibbs' quoted paper A. B. Wolfe's paper in the *Quarterly Journal of Economics*, Vol XLI and E. Krummreich's paper in the *Journal de société statist de Paris* 1927

sive colonization of other territories by the emigrants, while the periods of stagnation, or of decrease in density, are followed by a decrease of emigration from the country, and sometimes, even by immigration to it from other places

Second Proposition—As a general rule, migratory currents move from the regions of a more rapidly increasing population (or population with a greater effective fertility) to those of a less rapidly increasing one⁴² Many migratory movements have been going on following the lines of these propositions The history of the expansion of ancient Rome and Greece, and of their colonial activity, shows that they seem to have been the most intensive in the periods of a rapid increase in their population A series of corresponding phenomena of later periods also show something similar Even now the countries or the regions of emigration have been the countries or the regions of a relatively intensive increase of population, while the countries or the regions of immigration have been either those of low effective fertility or low density of population Further, migration from the country to the city corroborates considerably the second proposition because as a general rule, country population has been more "fertile" than city population In brief, it is probable that the two phenomena are somewhat correlated

But again we must not exaggerate the correlation From the indicated reason that there are several outcomes (inventions, war, migration, reduction of birth rate, and increase of a death rate) of the conditions created by an increasing density of the population, it follows that, instead of migration, some other outcome may take place Under such conditions, the increase of a peaceful migration may not follow, and the correlation may not be realized On the other hand, migration may take place because of reasons different from the demographic causes so called religious, political, and other migrations As a result, the actual curve of migration coincides only in part with the one expected

⁴² See, for instance, GINI, C., *I fattori demografici dell'evoluzione delle nazioni*, pp 34 ff., Torino 1912 HANSEN, G., *Die Drei Bevölkerungsstufen passim*, München, 1889 also see HADDON, A. C., *The Wanderings of People*, 1912, pp 2 ff., N. Y., MYRES, J. L., "The Causes of the Rise and Fall in the Population of the Ancient World," *Eugenic Review*, Vol VII, 1915

on the basis of the demographic situation. In other words, the correlation is tangible, but not close.⁴³

5 DEMOGRAPHIC CONDITIONS AND WAR

Before Malthus, many authors indicated the demographic factor as one of the principal causes of war. Malthus generalized the theories into a "law" where war functions as one of the effective checks of population. Since that time, this idea has become quite common in various formulations. "The World War was essentially an outgrowth of the pressing population problem which confronted the nations of Europe ten years ago."⁴⁴ Such is one of the varieties of the idea. "The growth of population with the resulting desire for economic expansion is a necessary cause of War" is another formula of a correlation between the two phenomena.⁴⁵ A. D. N. A. Wirth, von Bernhardt,

* Contrary to the authors who overestimate the correlation, some others, like Carr-Saunders, seem to me to underestimate it. "Migration does not arise where a condition of overpopulation has come about," he states. I regret to say that his whole discussion of the problem is rather speculative and that his vague theory of ideas as the causes of migration is much more defective than even the one-sided demographic theory of migration. From the fact that migration alone could not be so effective as to eliminate any possible surplus of the population due to a great potential human fecundity, it does not follow that migration cannot alleviate it to some extent. We certainly know a series of cases when migration has done this task. Due to the fact of the great potential fecundity of the human population, a migration of every hundred of possible progenitors has helped considerably to check a rapid increase in a given population. Carr-Saunders' indication that migration is a rare phenomenon, which takes place only once in centuries, is also incorrect. Any statistical census of migration from country to country, or from one region of a country to another, shows that the currents of migration are continual and quite considerable, even in normal times. His indication that overpopulated societies usually do not exhibit initiative and energy which are characteristics of the emigrants and that overpopulated societies consequently could not originate migrants, is also fallacious. Not every overpopulated society is marked in any or all of its periods by 'the absence of hope, and the spirit of enterprise.' Gini's, and Carl's opposite thesis that the greatest spirit of enterprise and initiative usually coincides with the periods of a rapid increase in population seems to be nearer to the reality than Carr-Saunders' statement. On the other hand, such a rapidly increasing society is likely to have a greater proportion of men with initiative and energy, and more stimuli to facilitate emigration. See CARR-SAUNDERS, *op cit*, pp 291-304. GINI, *op cit*, pp 34-37, 48-53, and *passim*. The data of the amount of permanent and normal migration may be found in SOROKIN, *Social Mobility*, Chap XVI.

* DUBLIN, L., "The Statistician and the Population Problem," in *Population Problems*, p 3.

* COX, HAROLD, *The Problem of Population*, London, J. Cape Co., p 72 and Chap III.

D Frymann, W G Sumner and A G Keller, and scores of other authors have made similar statements. Many authors have elucidated the same correlation in a more detailed form. The argument runs in essence within the Malthus theory. One group explains the correlation through a lack of room under the sun, caused by an increase of population. This leads to the necessity for an expansion of room through war. Another group states that a discrepancy between the population and its means of subsistence tends to result in war.⁴⁶ A third group of authors offers a somewhat more complex explanation. According to them, the demographic factor of population growth is always a latent cause of war, but as an actual cause it varies. "the degree of latency of this factor is in reverse proportion to the degree of the political organization of a society." The more complex the latter is, the more serious is the role of the economic factors and the less actual is the role of the demographic factors.⁴⁷ Some others offer a still more complex interpretation of the correlation. The periods of rapid increase in a population are followed by an increase of the imperialistic attitudes and psychology. This leads to an increase in the tendency of expansion which in its turn facilitates an outbreak of war. Such is the essence of this theory.⁴⁸ The curves of the movement of the population and of the fluctuation of the imperialistic psychology are parallel. "That the substratum of military movement is to be looked for in demographic development, appears evident",⁴⁹ but the correlation consists, especially in the World War, not so much in the form of a direct causation of the War by an increase of the population as it does in a disruption of the equilibrium between the demographic, the economic, the psychical and the political

⁴⁶ Examples of these types may be found in the quoted books of E. M. East, G. H. Knabbs, Novicow, Vaccaro. KEYNES J. M., *The Economic Consequences of the Peace* London, 1919, pp. 215 ff. ROSE, H., *Origins of the War* Cambridge, 1914. NICOLAI *Die Biologie des Krieges*, 1919 pp. 34 ff. SUMNER, W., and KELLER, A. *The Science of Society*, Vol. I, pp. 16-42, 62 ff., 1927.

⁴⁷ GINI, C., "Fattori latenti della guerra," *Rivista Italiana di Sociologia*, Jan.-Feb., 1915.

⁴⁸ See CARLI, F., *op. cit.* pp. 289-303, 391-410, 600-603. MAROI, L., *I Fattori demografici del conflitto Europeo*, Roma, 1919, *passim*.

⁴⁹ CARLI *op. cit.* p. 392. "Lo sviluppo numerico della popolazione fu la causa primaria delle grandi varianti economiche e sociali del secolo che precedette la guerra mondiale." *Ibid.*, p. 431.

variables within many European societies. The disruption was caused by a rapid increase of the European population in the nineteenth century resulting in a disruption of the equilibrium among many especially in the Anglo Latin and the German societies.⁵⁰

Thus whatever may be the explanation of the correlation it seems to be thought of as existing by a great many thinkers. However some authors for instance Carr Saunders are inclined to think that overpopulation is not a cause of war.⁵¹ Nevertheless the existence of the correlation is probable. On the other hand it is necessary to recognize that the partisans of its existence have not given any very satisfactory corroboration of their theories. Even the works of Gini, Carli and Marot which seem to be the best in this field are far from being convincing. They supply a series of historical facts which show that the periods of rapid population growth and those of great demographic disturbances have been usually followed by an increase of war.⁵² but the greater part of these facts are taken from the earliest periods of Greece or Rome whose population movement is practically unknown. Therefore their statements are rather guesses than factual corroborations. Other facts given from mediæval history are of the same kind in that they give only a part of the truth. The remaining part of the facts may be accurate but unfortunately they are contradicted by other no less ascertained facts. Can we say that every decrease in the density of a population leads to a decrease of war? Certainly not. The Black Death

⁵⁰ *Ibid.* Libro IV *passim*. See also MAROT *passim*.

⁵¹ CARR SAUNDERS *op cit* pp 305 ff. The argument that war is due to overpopulation falls to the ground says he. However he practically does not give any arguments in favor of his theory. His own theory of the causes of war—the instinct of pugnacity and traditions—is entirely deficient because of the uncertainty of the existence of such an instinct and because of an absence of any explanation why if such an instinct even exists it is manifested in the form of war only from time to time. Why does the same instinct lead at one time to fighting and war and at another time to peace? Carr-Saunders' theory does not answer the question at all. His account of the rôle of tradition and of highly organized government is so dark that the statements amount to nothing. Finally he himself recognizes the rôle of war in eliminating a part of the population and, in this way he admits contrary to his above statement the existence of a correlation between the movement of the demographic processes and the war phenomena. See pp 304-307.

⁵² See GINI *I fattori demogr. dell'evoluz. delle nazioni* pp 35 ff 48 ff CARLI, *op cit* pp 289-303 391 410 411-605.

of 1348 diminished the population of Europe enormously (by about one-third) If the hypothesis were true, we ought to expect that in subsequent decades war would decrease in Europe Such an expectation is far from being corroborated According to F A Woods' and A Baltzly's study, the number of years devoted to wars in France and England in the half century from 1350 to 1400, or in the century from 1350 to 1450, does not show any decrease The corresponding figures are as follows ⁵³

Countries	Number of Years Spent in War in Each Specified Period of Fifty Years							
	1100- 1150	1151- 1200	1201- 1250	1251- 1300	1301- 1350	1351- 1400	1401- 1450	1451- 1500
England	38	16	19	17	39 5	25 5	38	19
France	26 5	10	31 5	17 5	18	25	35 5	17

This is one of the many cases where a sudden and enormous, or a low and gradual decrease in the density of the population was not followed by a decrease of war phenomena With similar reason we are entitled to say that not every rapid increase of the population is followed by an increase of war The population of Europe increased rapidly, especially during the nineteenth century This would lead to an increase of war if the theory were quite general and valid The reality is rather different The figures in the table on page 386 may partly show this ⁵⁴ Though the number of years of warfare is not quite an adequate measure of the increase or decrease of war, nevertheless it is probably one of the best possible criteria The figures show that the above century, in spite of its excessively rapid increase of the population, had a quota of war years not higher than other centuries For other centuries also, the curves of the war years and of the population increase or decrease in these countries do not run parallel These indications, which may be supported by

⁵³ WOODS, F A, and BALTZLY, A, *Is War Diminishing?*, Boston and N Y, 1915, pp 43, 53.

⁵⁴ *Ibid*, pp 34, 39, 43, 53, 78 See there the figures for several other countries.

Countries	The Number of Years of War in Each Specified Period of 50 Years							
	1501- 1550	1551- 1600	1601- 1650	1651- 1700	1701- 1751	1751- 1800	1801- 1850	1851- 1900
Austria	36	39 5	40 5	33	29	19 5	7 5	6
Denmark	22 5	10	21 5	9	11	1	10	5
England	16	38 5	17 5	26	29	26 5	26	27 5
France	29 5	31	24	22 5	23	25 5	18	17
Russia	42 5	36	18	39 5	29	20 5	35 5	17 5

other data, are sufficient to support the claim that, if the correlation exists, it is far from being close, and is much more complex than it is supposed to be by its many partizans. Here again the task of future study will be to promote an objective and quantitative investigation which would show under what conditions and to what extent the correlation really exists (if it does) between the discussed phenomena. Though the trend of the studies has been drifting in this way, nevertheless it is still necessary to take many steps in order to clarify the relationship between demographic and war phenomena.

6 DEMOGRAPHIC FACTORS AND REVOLUTION

A correlation of these two phenomena has been alluded to by many thinkers of the past. At the present moment, a systematic theory of their relationship has been laid down by F. Carl. The essence of it is as follows: "The periods of intensive dynamics in demographic processes are also the periods of enormous psychological variations, revolutions and inner crises"⁵⁵. Side by side with the rapid increase or decrease of the population, an important part is played in this respect by the differential increase of various classes of the same society. The greater this discrepancy is, and the greater the obstacles to an infiltration of talented peoples from the lower classes into the upper ones, the greater

⁵⁵ CARL *op cit* pp 218-219 369-389

are the chances of revolution and inner crisis. Such is the essence of Carli's theory.

Is the theory accurate? I doubt it seriously. Not every increase in population leads to revolution. It is enough for us to look at Prussia, England, or Russia during the nineteenth century to see that. During this period the increase of their populations, especially that of Russia, was enormous, and yet these countries did not have any revolution. On the other hand, the population of France during the same period was almost stagnant. Its increase was less than in any other European country, and yet this did not hinder France from having at least three revolutions (1830, 1848, 1870-71) during that period. Again, the wave of revolutions and disorders in ancient Greece or Rome took place not so much in the periods of an increase of their population, as in the period of the depopulation of these countries. It is easy to multiply similar cases. They show that the increase or decrease of a population is not correlated, at least directly, with revolution. A more serious sign is noticeable in the differential increase of the upper and the lower classes, and in the intensive-ness of the vertical circulation of the individuals from the lower to the upper classes, and *vice versa*. But even there the situation is much more complex than is depicted by Carli. It is not true that the more free the access of the individuals from the lower classes to the higher ones the less are the chances of revolution. I have dealt with this problem in my *Social Mobility*⁶⁶ and my conclusions, based on careful study of the facts, are rather opposite. Mobile societies with an intensive vertical circulation are no more stable than immobile ones, though there is no general rule. The relatively closed aristocracies, when they are in proper conditions, have a longer span of existence than the open aristocracies. What is important is not so much the closeness or openness of the door to the upper classes, as the character of the aristocracy, and the conditions of its existence. Carli's corroborations of his hypothesis are rather few and not properly analyzed. It is only necessary to indicate that the European societies of the nineteenth century were more mobile, and their upper classes were more open, than many past societies, or many

⁶⁶ See SOROKIN *Social Mobility*, Chap. XXII.

Eastern societies. This however did not prevent the European societies from having a series of revolutions. Meanwhile, in past societies with hereditary aristocracy especially in Eastern societies revolutions have been more rare than in the open societies of Europe or of ancient Greece and Rome since their aristocracy became relatively open. Not repeating here other data given in my *Social Mobility*. I do not think Carli's theory is correct. In it there is only one correct point the degeneration of the upper classes as a positive factor of revolution but this is a quite different factor from the demographic forces. It may take place in an immobile as well as in a mobile society and with a closed as well as open aristocracy.⁵⁷ For these reasons Carli's theory of the correlation between the discussed phenomena must be judged as rather hasty.⁵⁸ The problem has not been studied seriously. It is up to future sociologists to elucidate it.

7 DEMOGRAPHIC FACTORS AND ECONOMIC PHENOMENA

Population Size and Density and Technique of Production — M. Kovalevsky (1851-1916) A. Coste E. Durkheim F. Ratzel P. Maugeolle E. Levasseur E. Dupreel C. Gini F. Carli W. Sumner and A. Keller and others have tried to establish a correlation between these two series of phenomena. According to them a growth of the population and its consequence an increase in its density have been responsible for an improvement in the technique of economic production and for a transition from less intensive forms of production to the more intensive ones. An increasing density makes the methods of production insufficient which were quite satisfactory for a less dense population. Hence the increasing pressure of this factor. It urges the invention of more efficient methods of production which will be fit to satisfy the needs of an increased population. This leads to inventions and through them to a betterment of the technique of production. On the other hand an increased density of population means a more intensive exchange of experience which is likely

⁵⁷ See SOROKIN *The Sociology of Revolution* pp. 397-413.

⁵⁸ With even greater reason, the same may be said of G. Ferrarini's interesting theory developed in his *Teoria dei periodi politici* Milano 18-4.

to result in a more rapid accumulation of knowledge and mental progress. In these ways, according to the theories,⁵⁹ societies have passed from the stage of hunters and fishers and collectors of natural products to that of agriculture and cattle breeding, and from the primitive methods of agriculture and hand-industry, to the more perfect methods of machine-facture and agriculture. Thus, contrary to the economic interpretation of history, the demographic school is apt to regard the factor of production itself as a function of the demographic factor.

The attempt to establish the above correlation has been made in various ways. Libich, F. Ratzel, and E. Levasseur have indicated that there is a correlation between the density of the population and the technique of production, without, however, indicating which of the two is the cause, and which is the effect. According to Ratzel's computation, on 1000 square kilometers there exists the following density of population under the specified technique for procuring the means of subsistence:

Hunters and fishermen (in various regions and at various stages)	from 2 to 1770
Nomadic shepherds	1770
Agricultural peoples (in various regions and at various stages)	from 1770 to 35 000
The peoples with the most intensive agricultural technique	177 000

As to the density of the population with a highly developed technique and commerce, as the contemporary industrial centers show, it exceeds the last figure many times.⁶⁰

M. Kovalevsky, (1851-1916) in a series of his historical and sociological works⁶¹ based on a concrete study of economic evolution, came to the conclusion that one of the "principal motors of economic evolution has been the growth of the population." According to his theory,

⁵⁹ See this argument in CARLI, *op cit*, pp 145-183.

⁶⁰ See also LEVASSEUR, E., 'La répartition de la race humaine sur le globe terrestre' *Bulletin Institut Intern Statistique*, Vol XVIII, 2^e livr., pp 48-64, CARLI, F., *L'equilibrio delle nazioni secondo la demografia applicata*, Bologna, N. Zanichelli Co., 1909, pp 96 ff.

⁶¹ See KOVALEVSKY, M., *Obshchinoje semicladenie* (Communal Possession of Land), Moscow, 1879 pp 6-7 and *passim*. A Study of the Disintegration of Communal Land Possession in Waadi Canton. Russ., 1876. "Évolution du régime économique," *Le devenir social*, June 1896. *Die Ökonomische Entwicklung Europas*, Berlin, 1908 and later all volumes in Russian the work began to be published in 1898, *Contemporary Sociologists*, pp 260 ff., 200 ff.

this factor has been responsible for the transition from a stage of hunters and fishermen to agriculture, and from a primitive system of agriculture to a more intensive one with corresponding changes in the system of land ownership and land possession. To the same factor is due the substitution of a manufacturing system of production in industry for a domestic one, and that of the machinofacturing system for a manufacturing one, with a corresponding change in the division of labor and in the interrelations of capital and labor. Thus the simple fact of the growth of population called forth a division of labor, a social differentiation into castes, orders, and classes, and the evolution of the technique of production, as well as that of the economic regime.⁶²

Such is the essence of Kovalevsky's theory, formulated and factually corroborated by him considerably earlier than was done by Coste, Durkheim, Mougeolle, or even by A. Loria.⁶³ Stressing the importance of this factor, Kovalevsky, however, strongly criticizes all those who would try to deny the existence and importance of other factors. He is a pluralist of a very definite type.⁶⁴ He makes a mockery of all those who 'try to regard historical processes as a simple equation with one unknown.' For him the very problem of the principal factor is a pseudo problem, and wrongly set forth. In the future it must be put away.⁶⁵ As we shall see, Durkheim came to the somewhat similar conclusion that the process of the division of labor and economic evolution has been due to the growth of the population. (See chapter about Durkheim.)

Independently from Kovalevsky, A. Loria in his early work about land rent developed a theory very similar to that of Kovalevsky.⁶⁶

Furthermore, P. Mougeolle and F. H. Giddings outlined a theory which also gave an important role to the factor of growth

* KOVALEVSKY, *Contemporary Sociologists*, pp. 200-201.

* See Loria's remark about priority in his *Il capitalismo e la scienza*, p. 251. Kovalevsky's answer in *Contemporary Sociologists*, p. 261.

* See SUBNIKIN, P., 'Kovalevsky's Theory of Factors,' *In Memoriam of M. Kovalevsky* (Russ.), Petrograd, 1917.

* KOVALEVSKY, *Contemporary Sociologists*, pp. vii ff.

* Kovalevsky elaborated his theory also independently from Loria three years earlier. For this reason, Loria's allusion that Kovalevsky only repeated his theory is quite baseless.

and density of population"⁶⁷ Quite recently, E. Dupreel, with Coste's one-sidedness and without Kovalevsky's reservations, without mentioning his predecessors, said that "Social progress and civilization is the fruit of the numerical increase of the population"⁶⁸ F. Carli, on his part, states that "the denser population has more developed technique" and that "the non densely populated societies have been poor in technical inventions"⁶⁹ There are other authors who have incidentally, or in a detailed way, insisted on the importance of the factor of population in the evolution of the technique of production We need not mention their names, because their statements add little to the above

Criticism—The above theories indicate two reasons why a growth in the number and the density of a population leads to an intensification of the technique of production an intensification of social interaction which results in a more intensive exchange by experience, and an increase of need This means that both reasons are, so to speak, not inherent in the density and to the number of the population Only as far as an increase in the density and number of the population is followed by an intensification of interaction, and by an increase of the danger of starvation, need the demographic factor lead to an improvement of the technique of production Now, can we say that an increase of the population always and invariably gives an enrichment of human knowledge, and an increased lack of necessities? Sometimes it does, but sometimes it does not give these results In order that the first result may take place, it is necessary that the corresponding *quality* of interacting people be sufficiently high Thousands of idiots may be in the most intensive contact, and yet probably only a Bedlam would result from it Again, if an increasing population has the complete possibility of satisfying its needs through emigration, war, plundering its neighbors, etc., without an intensification of the technique of production, as was the case in the past in regard to many tribes, a progress of the technique of production may not follow More than that, even the pressure of

⁶⁷ See MOUGEOLLE, P., *Statique des civilisations*, Paris, 1883 GIDDINGS, F. H., *Principles of Sociology*

⁶⁸ DUPREEL, E., "Les variations démographiques et le progrès," *Revue de l'Institut de Sociologie*, pp 359-385, May, 1922.

⁶⁹ CARLI, *op cit*, pp 147-149 Chap V

needs being increased, a betterment of the technique of production may not follow, simply because new inventions do not always come in proportion to the social need felt for them. Poor health urgently needs an efficient remedy, yet it often lacks this and the man dies. The same is true here. During thousands of years, thousands of societies have experienced poverty, famines, and other miseries, and yet the necessary inventions have not been created to alleviate these miseries. In the majority of cases, the outcome from overpopulation and misery has been found not so much in a new invention, as in a death from starvation, in infanticide, in military robbery of neighboring peoples, in migration, in strife, war, abortion, and so on. Being unable to invent, the people have "preferred" to die.⁷⁰

These considerations are enough to show that if there is a correlation between an increase in the number and the density of the population, and progress in the technique of the production of the means of subsistence, it is not very close and perfect. If the correlation were perfect, we should expect that the technique of economic production would be higher and the inventions more numerous when the number and the density of the population is greater. The facts do not support the expectation. While, at the end of the nineteenth century, the average density per one square kilometer in Australian Victoria was 5 inhabitants, in New South Wales, 14, in the United States, 8, in Canada, 0.3, in New Zealand, 2, in Finland, 7, in Sweden, 12, in Norway, 6, in Denmark, 55, in France, 71, in Switzerland, 71,—at the same time it was 182 in Bengal, in the northwestern provinces of British India, 169, in India generally, 61, in China, from 60 to 94, in Italy, 96, and so on.⁷¹ Evidently we have no reason for thinking that the first group of countries with a small density of

⁷⁰ My study of the correlation between famine and the invention of new sources of means for subsistence has shown that if, under the influence of famine (and overpopulation), there has sometimes been made a betterment of the methods for obtaining and producing necessities, there has more often been an increased mortality, while "preventive and repressive checks" have taken place. If any increase of misery were followed by an improvement in the production of economic necessities the peoples with the most numerous famines should have been the most inventive. In reality, however, the facts do not support such an expectation. A detailed analysis of this has been given in chapter IV of my *The Influence of Famine and the Food Factor*.

⁷¹ VON MAYR, G., *op cit*, Vol II, p. 48. LEVASSEUR, *La répartition*, p. 52.

population has a more primitive system of technique industry or agriculture⁷² Furthermore if the discussed correlation were close within the history of the same country the technique of economic production would make progress with every increase in the density of its population This expectation is corroborated to some extent⁷³ but the exceptions are so numerous that the correlation must be considered rather imperfect Besides the correlation seems to go only to a definite limit after it the law of diminishing returns begins to operate and tends to annul the potential benefits of an increased pressure in the population Here are a few examples of the many possible Kovalevsky himself indicates that in England in the period from the sixth to the sixteenth century there was not any noticeable improvement in the technique of production yet the population of England was increasing during this period⁷⁴ We cannot say that the population of the Roman Empire was less dense in the second century A D than in the third and in the second centuries B C yet the technique of production and invention in the second century A D especially at its end was rather inferior to that of the preceding period Moreover it began to deteriorate more and more so that it eventually called forth a depopulation of at least some parts of Italy⁷⁵ Read the economic history of China In spite of the many waves of increase and decrease in its population and in spite of its great density attained centuries ago its industrial and agricultural technique has remained practically at the same stage which was attained centuries ago⁷⁶ In brief the discussed cor

⁷² This shows that Carli's statement that industrial countries regularly have a greater density of population than agricultural countries is also extreme We cannot say that *la coesistenza delle due serie di fenomeni ha una regolarità di legge* CARLI *op cit* pp 9 ff

⁷³ See facts in CARLI *op cit* Chap V

⁷⁴ KOVALEVSKY *Contemporary Sociologists* pp 244-245

⁷⁵ ROSTOVITZ *The Social and Economic History of the Roman Empire* pp 166 303 305 W Simkhovitch goes even so far as to say that the evolution of the agricultural technique of production in Rome represents a passage from an intensive to an extensive system In ancient periods 7 jugera of land was enough to maintain a farmer's family In the time of the Gracchi 30 jugera was necessary in the time of Caesar 66 in the time of Augustus 400 Such a reverse movement if Simkhovitch's conclusion is at least partly valid was going on in the period of an increasing number and density of the Roman population SIMKHOVITCH W 'Rome's Fall Reconsidered', *Political Science Quarterly* 1916 p 221

⁷⁶ See LEE M P H *The Economic History of China passim* N Y 1921

relation is tangible in many cases, but it has its limits⁷⁷ beyond which no further increase of the population produces an improvement of technique among many peoples, and it has so many exceptions that the correlation cannot be regarded close or regular. Finally, if the correlation were perfect, and there were no limits beyond which it ceased to exist, there would be no danger of overpopulation, and no discrepancy between the means of subsistence and an increased population could occur. Each increase in a population would secure new inventions and a corresponding improvement of the technique of production, and, in this way, the need would be met. It is necessary to disregard all the facts of human history to be able to support such a view. An innumerable number of famines, miseries, economic impoverishments, migrations, and so on, show that in a great many cases an increased population has not been followed by such inventions and improvements, and that the outcome of overpopulation has been found in less pleasant ways of re-establishing the equilibrium between the population and its means of subsistence.⁷⁸ All Malthusian literature, and even the non Malthusian theories of population, supply abundant material which shows this.⁷⁹

⁷⁷ This is recognized also by Carl, *op cit*, pp 172, 177 ff.

⁷⁸ See the facts in DESCAMPS P., 'Comment les conditions de vie de sauvages influencent leur natalité,' *Revue de l'Institut de Sociologie*, Sept., 1922. CARR-SAUNDERS, *op cit*, Chaps VII-XI.

⁷⁹ The theory of the optimum number of population, and the possibility of deviating from this optimum by a too numerous population, is not denied even by the opponents of Malthus. Neither do they claim that each increase in the population will be followed by a corresponding improvement in the technique of production. They show conspicuously that in the past, as well as in the present, the common method of re-establishment of "the optimum number" has been not so much a betterment of the technique, as in methods of increased mortality, decreased birth rate, infanticide, abortion and so on. About this, see the theory of the optimum number of population, CANNAN, E., *A History of the Theories of Production and Distribution* Chap V London, 1903. NICHOLSON J SH., *Principles of Political Economy*, Vol I, pp 163 ff, London 1893. CARL, *op cit*, pp. 98 ff, CARR SAUNDERS, *op cit*, pp 199 ff, WOLFE, A B. "The Optimum Size of Population," in DUBLIN'S *Population Problems*, Boston, 1926, the quoted works of Julius Wolf and Budge. As to the pro-Malthusian theories, they show the above facts of overpopulation, the limited possibility for an improvement in the methods of production and other facts where, in spite of an increased density of the population, the needed improvement of technique has not followed. See THOMPSON, W S., *op cit*, *passim*, and Chaps IX-XI. EAST, E M., *Mankind at the Crossroads*, 1923. KNIBBS, G H., "The Problems of Population, Food Supply, and Migration," *Scientia*, Vol I, No XII 1919. "The Mathematical Theory of Population" in *Census of the Commonwealth of Australia*, 1917.

These considerations are sufficient to show that, even regardless of the fact that the number and the density of the population itself depend greatly on many factors, these demographic forces, taken as "variables," seem to show some correlation with the change in the technique of production, but the correlation is far from being close, general or unlimited. This means that the evolution of the technique of production may be accounted for only in part through the demographic factor. We cannot say that this factor alone is always necessary or sufficient for producing inventions and improvements in the technique of production.

Population, Size, and Density Correlated with the Forms of Ownership and Possession—Such Russian investigators of the forms of land property in Russia as M. Kovalevsky, A. Kaufmann, N. Organovsky, R. Kotcharovsky and others⁸⁰ have found that there is a correlation between the forms of landownership or land possession, and the density of the population in various parts of Russia. As we proceed from the less densely populated southeastern part (Siberia and central Asiatic provinces) to the more densely populated parts of central and northwestern Russia, the form of community landownership (*obshchina*) is more and more superseded by private or individual landownership. The explanation of the correlation lies in the fact that a greater density in a population makes a more intensive agricultural production necessary, and this is more possible under a regime of private ownership and unhampered individual initiative, than under the regime of community ownership with its redistribution of land, with its inertia, and its limitation of private initiative and profit. This may serve as an example of the correlation between the density of a population and the forms of economic organization.

In Russia the correlation has been tangible, though it is far from being perfect.⁸¹ It seems to be even less tangible in other countries, and at different times. I am a poor specialist in the economic history of the forms of landownership, but in studying

⁸⁰ See KOVALEVSKY, *Obshchinnore semievladense*, KOTCHAROVSKY, R., *Russian Obshchina* (Russ.), KAUFMANN, A., *History of the Russian Common Land Ownership* (Russ.)

⁸¹ It is interesting to note that in the years 1917-1926 the number of persons in the territory of Soviet Russia decreased in comparison with that before 1917, and yet the forms of private land possession were growing at the cost of the *obshchina* form, in spite of the communist régime.

the economic history of China and an alternation between the community landownership (so called Tsing Tien System) and private landownership, I failed to find any definite correlation. Alternation has been going on continually, but without any correlation with fluctuation in the density of population.⁸² The same seems to be true in regard to the forms of landownership in India, as far as they are known to us. During almost a thousand years (from the fifth century B C to the third and fourth centuries A D) the density of the Indian population probably underwent considerable changes. Nevertheless, the system of the common possession of land seems to have dominated in all this period.⁸³ Likewise, in the long history of ancient Egypt, the density of the population probably underwent considerable changes, but up to the Ptolemaic period, "there had been only two types of landed proprietors in Egypt—the king and the gods."⁸⁴ I doubt also whether, in the evolution of the forms of landownership in Rome, there may be found any tangible correlation with the density of the population, except perhaps in the last period of the Western Roman Empire. Turning to our own times, we see in almost all Western countries the same system of private landownership dominating, in spite of the great difference in the density of their populations, ranging from 1 to 2 inhabitants to more than 200 per kilometer. If the correlation were close, such a thing could not have taken place. On the other hand, countries like India or China, in spite of a considerable density, have kept community landownership alive, while in Norway, Sweden, Finland, New Zealand and Australia, in spite of the small density of population, community landownership is practically absent.⁸⁵ These exceptions are sufficient to show that, even if the alleged correlation exists, it is very imperfect and far from being general.

⁸² See LEE, M. P. H., *op. cit.*, *passim*. CHANG, CHEN HUAN, *The Economic Principles of Confucius*, pp. 119 ff., 332 ff., 497 ff., N. Y., 1911.

⁸³ See *The Cambridge History of India*, Vol. I, N. Y., 1922.

⁸⁴ ROSTOVITZ, *op. cit.*, p. 262.

⁸⁵ To this it may be added that the table of the forms of property among the different hunting, pastoral, and agricultural peoples, given in the chapter about the Economic School (see further) also does not support the discussed correlation, in spite of the fact that passing from the lowest hunters to the highest agricultural peoples, we pass from the societies with the lowest, to the societies with the higher density of population.

I do not here have space to scrutinize the series of other correlations between the density of the population and other economic relationships claimed by the partisans of the demographic school. To give an idea of their character I shall give the following quotation from Kovalevsky which sums up the character of the correlated economic phenomena

In the field of economic relationship changes in the density of the population have manifested themselves in the substitution of a more efficient bondage labor for a less efficient slave labor and finally in that of free labor for a bondage labor system. The liberation of slaves *en masse* and the emancipation of peasants made at the beginning by individual feudal landlords and later on by the governments of the city republics and of the nations have been possible only through the inevitable increase of rent due to an increase of the population. Parallel to these changes in the field of agriculture and land possession corresponding changes have been going on within the field of industry and commerce and in the field of organization of the industrial and commercial classes. From the hands of the slaves and the serfs industry passes into the hands of the village artisans and the city masters who for the sake of mitigating competition have organized guilds and corporations. To this evolution of industrial and commercial activity there corresponds a process of differentiation between country-economy and city-economy the appearance of markets and fairs the organization of city economy and so on.⁸⁶

Such is a brief resume of the most important economic and social effects of the growth of population which have been shown by Kovalevsky in eleven volumes of his *Die Ökonomische Entwicklung Europas*. From the quotation we see that the contended correlations are highly important and that the role ascribed to the growth of the population is really great. I think that there is a part truth in these contentions but only a part and that part defined rather vaguely. A severe statistical historical and logical scrutiny of these correlations would probably make many of them questionable some of them fallacious and part of them so to speak local. As I said I do not have space to test these contentions but I am sure that such a testing would result in the above

⁸⁶ KOVALEVSKY *Contemporary Sociologists* pp 245-246.

conclusions With a corresponding modification, this may probably be said about other correlations in this field

Demographic Factors Correlated with Economic Prosperity—In this field the theories which have tried to formulate a series of definite correlations between the progress of industry, commerce, the standard of living, and economic well-being, on the one hand, and an increase or decrease in the density of the population, on the other, have been especially numerous In the past, as well as in the present, the theories have been rather opposite According to one group of theorists, represented by Malthus and the Malthusians, an increase in the density of a population tends to produce overpopulation, and influences the well being of the society negatively For this reason they view an increase of population negatively, and at the present moment especially, favor birth control, as a convenient means for checking population growth Usually such theories come principally from the countries with a considerable density, and with a rapid increase in their population⁸⁷ Another group of these theories, more typical of the past, and at the present moment supported principally in France, which is now suffering from depopulation, maintains a rather opposite view of the beneficial effect of an increase of the population on economic development and well being of a country⁸⁸ Finally, the third group of theories take a middle position, expressed in their somewhat vague conception of the *optimum number of a population* for any given conditions⁸⁹ When the number and the density of a population is at this optimum point, the economic influences of such a situation are the best possible under the circumstances When there is a deviation from the optimum point in the form of over or under population, the effects are negative

Thus, all these theories explicitly or implicitly contend that

⁸⁷ The indicated books of East, Thompson, Sumner Keller (Vol I pp 42-62 ff), and J Sweeney are examples of this type of theory See also Cox, H., *The Problem of Population*, London 1922 The author even offers an organization of a 'League of Low Birth Rate Nations,' Chap III

⁸⁸ Typical samples of these theories are given in the mentioned book of P Leroy Beaulieu, and especially in BERTILLON, J., *La dépopulation de la France*, Paris 1911 In America there recently appeared a current of thought pertaining also to this type of theories It is represented by L. Dublin's last works See his paper in *Population Problems* 1926

⁸⁹ The mentioned works of Carr Saunders, A B Wolfe, Budge, Nicholson and Cannan are varieties of this type

there is a definite correlation between the discussed demographic factors and the economic well being of a society. Now, which of these theories is correct? In the first place, the very fact of the existence of such opposite theories makes one doubt the accuracy of each of them. In the second place, historical and statistical data do not entirely support any of the extreme types. Indeed, it is possible to contend that in many cases, a decrease in the number and the density of a population tends to raise its economic well being. For instance, according to E. Meyer, in ancient Greece in the second century B. C., there was a considerable depopulation, and, at the same time, an increase of the material well-being of the decreased population.⁹⁰ F. Curschman, in his study of the famines in the Middle Ages, states also that often, after a great decrease of the population in famished areas (through great mortality, decreased birth rate, emigration from such districts, etc.), the well being of those who survived became considerably greater.⁹¹ D'Avenel, on the basis of his classical study of property, incomes, wages, and prices in France from 1200 to 1800, states also that the fluctuation of real wages of the labor classes during six centuries was independent of either the political regime, guilds, corporations and unions, or prices; the movement of their well-being was entirely determined by the law of supply and demand. Wages would rise in periods of a decrease in population, and a consequent dearth of labor, and they would go down in periods of a rapid increase in population, with an abundant supply of labor. Only the interference of science in the form of a new beneficial invention could sometimes counterbalance the downward trend of real wages caused by population growth.⁹² M. Kovalevsky, on his part, has shown that one of the results of the Black Plague of 1348, which decreased the population of western Europe by about one-third, was a series of economic and social benefits for the laboring and unfree classes.⁹³

⁹⁰ MEYER, E., "Die Bevölkerung des Altertums," *Handwörterbuch d. Staatswissenschaften*, 3d ed., Vol. II.

⁹¹ CURSCHMAN, F., *Hungersnöte im Mittelalter*, pp. 41-47, Leipzig, 1900.

⁹² D'AVENEL, VIE G., *Decouvertes d'histoire sociale*, pp. 8, 148-9, 155, 209, 230, and passim, Paris, 1910.

⁹³ See KOVALEVSKY, *Die Ökonomische Entwicklung Europas*, Vol. V, Chaps. V-XII, Berlin, 1911. According to the law of demand and supply, labor wages had to increase in proportion to the decrease of the population, and this phenom-

In a similar way many great devastations of the population in China have been followed by a comparative improvement of the material well being of the surviving population⁹⁴ These and other similar facts seem to corroborate the accuracy of the pro-Malthusian theories yet there are facts which show that decrease of the population may have the opposite result The first example is given by the later period of Roman history After the third century A.D. the process of depopulation took place in Italy and in some other provinces of the Roman Empire This however was not followed by betterment but by great aggravation of the economic situation of Rome and of the well being of its population.

Depopulation became now the outstanding feature of the life of the Empire As a result the general productivity of the Empire constantly decreased Larger and larger tracts of land ran to waste The exchange of goods became more and more irregular

Hence the frequent occurrence of famines and the decay of industry No partial measures could counter this progressive decay⁹⁵

Another example is given by contemporary France. As we know its population has been almost stagnant during the whole of the nineteenth and twentieth centuries If the discussed theory were right we should expect that its population would be much better economically than that of other European countries whose population has been rapidly increasing during that period Such a conclusion was indeed made by some authors⁹⁶ Nevertheless quite competent French investigators indicate that the real situation is quite different Besides many non-economic disastrous effects in the field of purely economic life an insignificant increase of the French population has caused the following results A slower rate of increase in national wealth than in other countries with a more rapidly increasing population and a slower increase of salaries and well being of the population—in brief brings

ena took place throughout all the countries of Western Europe because the number of the population decreased, p. 274

⁹⁴ See LEE, M. *op. cit. passim*

⁹⁵ ROSTOVITZ M. J. *op. cit.* pp. 424-425

⁹⁶ THOMPSON W. A. *op. cit.* pp. 156 ff

results opposite to what should be expected. The following table illustrates this⁹⁷

Countries	Population (Millions)		National Wealth (Billions)	
	1815	1914	1815	1914
Germany	24	68	35 40	400
France	29	39	80	295
England	18	45	45 5	450

Furthermore if the theory were right we could expect that countries with a low density of population would have necessarily greater economic well being than countries with a higher density of population. But again the facts do not support such an expectation. Within countries with relatively low density we find a low standard (Russia) and a high standard of economic well being (United States of America New Zealand Australia). The same is true in regard to other countries with a high density of population (Belgium England on the one hand and by contrast many provinces of India and China on the other).

Without mentioning other similar cases the above seems to entitle us to conclude that an absolute or relative decrease in the density of population is not always nor everywhere followed by a positive influence on the economic well being of a society. This means first that the correlation between the two phenomena is much more complex and less close than the partisans of this type of theories assure us. Second the fluctuation of prosperity or impoverishment of a society cannot be accounted for through a quantitative fluctuation of the number and the density of the population alone. Third the correlation has been studied insufficiently. In order to make it clear the partisans of these theories must indicate under exactly what conditions in what way and to what degree a decrease in the density of population may have

⁹⁷ GINI C. *Ammoniare e composizione della ricchezza delle nazioni* p. 553
Torino 1914. See also BERTILLOU *La dépopulation de la France* pp. 9-61

positive effects, and when, under what conditions, and beyond what limits it begins to exert a negative influence

With a still greater reason, the above may be said of the opposite type of theories, with their motto "With every mouth God sends a pair of hands," and, the greater the population, the better the economic well being of a society I have already given some considerations which show the inadequacy of such a theory Numerous computations of the demographers (R Pearl, G H Knibbs, E M East, J Sweeney, and others) show that, under the present rate of increase of population, if there are no miraculous inventions within a few generations the earth will be overpopulated and a consequent lowering of the standard of living may be expected⁹⁸ History records too plainly the economic misery of many "overpopulated" countries to allow us to maintain the thesis of the discussed optimistic theory In a few cases, an increase in the density of a population has been followed by a rising economic well-being, but in still more numerous cases it has had quite opposite effects Therefore we must make the same conclusion in regard to these theories which I made in regard to the opposite hypotheses

Thus we must conclude that the theories dealing with the optimum number of the population are nearer to the truth The more a population deviates from the optimum number, either above or under it, the more negative will be the influence on the economic well being The nearer the number is to the optimum number, the better will be the economic influence But unfortunately, just exactly what this "optimum number of the population" is, the theories do not declare Their answer is rather a vicious logical circle "The optimum number of the population is the optimum number which varies for various times and societies"⁹⁹ Some other writers, like Carr-Saunders, go even so far as to state that "There will, in fact, under any given circumstances, always be an optimum number"¹⁰⁰ But, according to the same author, it is

⁹⁸ See KNIBBS, G H, *The Mathematical Theory of Population* p 453 EAST, E M, *op cit*, Chaps IV, VI, PEARL, R, "The Population Problem," *Geographical Review*, 1922, No 4

⁹⁹ This is all that is given by the 'optimum number' theory of Cannan, Nicholson, Wolf, or some others.

¹⁰⁰ CARR-SAUNDERS, *op cit*, p 200 ff See the proper critical remarks against Saunders' "optimum number" in WOLFE, A B, *op cit*, p 68, note

almost always broken by either over or underpopulation. Thus, even this group of theories is far from being satisfactory.

Summing up this brief analysis, we conclude that a correlation seems to exist between the fluctuation of density in the population of a given society and its economic well being but exactly what this relationship is, we do not know as yet. It seems to be much more complex and less close than the theories claim. It is the task of the future to find out when, under what conditions, and to what extent, an increase or decrease in the density of a population facilitates an increase or decrease of its economic well-being, and what the optimum number for a given society should be. At the present moment, we still know very little in this field.

8 SIZE AND DENSITY OF POPULATION CORRELATED WITH THE FORMS OF SOCIAL ORGANIZATION

We have several theories which try to show that the demographic factors are responsible for the forms of social and political organization. *A priori*, it is possible to foresee that the family and marriage forms, and the political and social regimes will be different when a territory the size of the United States has a population of 10,000 and when the population amounts to 100,000,000 human beings. But exactly what the difference will be, and what it would be when the contrast in size and in density was not so enormous as in this case, remains an unsolved problem. Let us take a few of the theories which try to clarify some cases of this type.

Demographic Factors Correlated With Social Differentiation, Stratification and Segregation—It is rather evident that the differentiation of a population into urban and rural groups, into various strata, classes, castes, and what not, depends considerably on an increase in population. As its size and density increase the above forms of social differentiation progress also. The first phenomenon is shown by the history of cities, the second one, by a series of studies like Durkheim's study of the social division of labor. Admitting the existence of a correlation, at the same time it is necessary to indicate that it is not so close as to have no exceptions or deviations. The size of the cities, as well as the per cent of the urban and the rural population, only remotely depends

upon the size of a country's population. This is shown by the fact that among countries with a small population, there are countries with both a low and a high per cent of urban population (for instance, Belgium, Finland, Korea). They are both with and without large cities. The same is true in regard to the countries with a large population (Compare China, Russia, and the United States). This means that the degree of a country's urbanization is a function not only of, and possibly not so much of, demographic factors, as of a series of other factors. The same is true in regard to the character and the degree of labor division and social differentiation. China is a more densely populated country, and has a larger population than the United States, and yet the technical division of labor in China is less developed than in America, or in other countries with a lower density and a smaller population. The same is true in regard to social differentiation. There are big and densely populated societies with and without the caste system (India, China, Russia, the United States of America). There are densely populated societies with and without nobility of birth (Belgium, many provinces of India, Germany). The same is true in regard to small countries, and the countries with a low density of population. These indications are sufficient for the claim that the correlation between the discussed phenomena is not perfect, knows many exceptions, and is less close than its partisans assure us.¹⁰¹

Thus, even these fundamental forms of social organization, stratification, and differentiation are only to some extent correlated with the demographic factors. There is a still smaller probability of finding a quite tangible correlation between the demographic factors and other less fundamental characteristics of social organization and institutions. Let us examine one or two examples to see if this be true.

Demographic Factors Correlated with Family Organization — One of the best theories of a correlation between the forms of

¹⁰¹ The above shows the one-sidedness of Coste's, Kovalevsky's, Carli's, and Durkheim's theories which regard urbanization, social division of labor and social differentiation, as a function of the size and the density of the population alone, or almost alone. The table of the forms of government among the simplest peoples given in the chapter about the economic school, (see further) only supports what I have said above.

family and marriage, and demographic factors is set forth by J. Mazzaella in his explanation of exogamy, polygamy, and of "the ambilian" forms of marriage, characterised by the fact that the husband enters the family of his wife, and assumes there a servile and subordinated position. Mazzaella has shown that these forms of marriage are typical of the lowest primitive peoples, and that they are regularly followed by exogamy, polygamy, a matrilinear system of descent, and by a lack of social stratification in these primitive groups, (or by "*gentilisme*," in his terminology). What factors are responsible for such a type of family, marriage, and social structure? Mazzaella's study leads to the conclusion that neither the geographic, racial, political, economic, nor religious factors can account for it directly, because the system is found among peoples who are different in all these respects. His analysis shows further that the discussed characteristics of family, marriage, and social organization are found among the peoples who (a) live in an area with unlimited potential economic resources, (b) which, however, for their utilization, and conservation require a great deal of human labor, especially the labor of adult males, though (c) they are as a rule, groups of small size and not having a sufficient number of adult males (underpopulation, according to the theory of "the optimum number"). Hence, Mazzaella's conclusion "Exogamy, polygamy, and the ambilian forms of marriage are an indication of the numerical weakness (underpopulation) of a social group, and a manifestation of its need for increasing its population (especially the adult males) through the adjunction of males of other social aggregates." According to Mazzaella this hypothesis is in harmony with the facts, and explains many details of the ambilian and the exogamic forms of family and marriage.¹⁰² Thus, these forms of family and social organization are in a close correlation with the size and the density of the population, according to the author. This means that they are in a considerable degree a function of demographic variables. I must confess that, unlike a great many works in ethnology, Mazzaella's works

¹⁰² MAZZARELLA, J., *Les types sociaux et le Droit*, pp. 178 ff., 282-312, Paris, 1908. *Studi di etnologia giuridica, passim*, Catania, 1903.

are free from hasty generalizations, from the "method of illustration" and from the carelessness in scientific analysis which usually makes these works valueless scientifically. I am inclined to think also that in Mazzarella's generalization there is something scientifically valid. But, on the other hand, the generalization goes too far. Hobhouse's, Wheeler's and Ginsberg's studies have shown that polygamy, a high position for women, and matrilinear descent, are found among peoples with different sizes of population, with different forms of stratification, and with different natural environments¹⁰³. Among the exogamic peoples, there are several who live in a poor natural environment, who have a patrilinear system of descent, and who practice various methods of checking the increase of their population¹⁰⁴. These facts do not agree with the hypothesis. On the other hand, we cannot say that all peoples who have the wife enter the family of her husband and become "*filiae loco*" to the head of the husband's family (*pater familias*) or become entirely subordinated to her husband, (*manus mariti* and marriages *cum manu*) live in a poor geographical environment, or are not under the necessity of expending a great deal of labor in obtaining their means of subsistence, or are always overpopulated. Among the populations of Europe and America in the nineteenth century, we have had societies with the most diverse densities and sizes of population, but they have all been essentially identical in the system of family and marriage. In the history of the family and marriage relationships in Rome, Greece, Europe, or the United States the later stages, when the density and the size of these societies was increasing, have not caused a further enslaving of wife to husband nor an increase of *manus mariti* as would be expected according to the theory, but rather, an emancipation of women and a weakening of the authority of the husband. These contrasts are sufficient to show the shortcomings of the theory, and its generalization.

¹⁰³ See the table in the chapter about the Economic School.

¹⁰⁴ Study from this standpoint the peoples with exogamy in WESTERMARK'S *History of Human Marriage* the chapter about exogamy. Study in CARR SAUNDERS, *op cit*, Chaps VII XI the peoples among whom infanticide, abortion, drinking of various decoctions, tabooing of sexual intercourse, postponement of marriage, mutilations of genital organs, and other methods for decreasing the growth of population are practiced.

9 DEMOGRAPHIC FACTORS CORRELATED WITH FORMS OF
POLITICAL AND SOCIAL INSTITUTIONS

In anthropological, historical, and sociological literature, there are several theories which attempt to view various political regimes (such as despotism, democracy, monarchism, or republicanism) and various social institutions (like slavery, serfdom, free classes, feudalism, "equal society" and so on) as a function mainly of size and density of population. Accordingly, the principal changes in these fields are accounted for through changes in demographic conditions. The above theories of Coste and Kovalevsky may serve as examples of these hypotheses. Since I do not have space here to analyze them, I can only say that if they are scrutinized in the manner of my above analysis of Mazzarella, and other theories, not much validity would remain to these hypotheses. The greater part of them are so vague in their meaning that if only because of this vagueness, they must be put out of science. Another part represented by Coste's theory of social evolution (see above) may be very "sympathetic" and "pleasant" for our wishes (it is not disagreeable to be drifting by a "law of social evolution" to an ideal paradise of perfect equality, liberty, and fraternity), and yet they are nothing but a kind of new "theology" in which the old fashioned beneficial Providence is superseded by the "law of beneficial evolution or progress." This is the only difference between the old and this new theology. Happy are those who can believe! But for those who look for a seriously proved theory, Coste's "law" and hundreds of other "sympathetic" theories, are nothing but scientific "rubbish" contradicted at every step by stubborn facts. On what, for instance, does he base his statement that, at "the stage of Bourg," there was an absolutism of family and supremacy based exclusively on birth? On fiction, no more. Only a little study of the facts is necessary to see that the real situation is much more complex and quite different. On what is based his statement that with an approach to the stage of federation there is also an approach to the supremacy of intelligence and free associations? On nothing, also, except wishes. If I were a believer in any linear law of evolution, I would rather have reversed his theory,

and have tried to show that, in the primitive stages, intelligence and free association played a greater rôle than they are playing in the last federative stage. But I am not a believer in either principle, therefore I simply state that both 'laws' are "pseudo-laws" ¹⁰⁸. In the history of a single country (especially of a long-existing society) study the alternation of monarchy and republic, the increase and decrease of despotism, the introduction and elimination of an elective system, and then confront these changes with the fluctuations in the size and density of the population, and the result will scarcely show any tangible correlation. Investigate the distribution of various political régimes or of certain types of social institutions among various contemporary societies, then compare these with the size and the density of the population of these countries, and the result is again likely to be nil. In brief, if there is a correlation between demographic factors and the forms of social and political organization (which is probable), it is so remote, so complex, and so strongly masked by the interference of other factors, that we must regard it as a potential or intangible, rather than as a factual correlation. At any rate, only the future can establish it. The existing theories, with perhaps a very few exceptions, do not count much. As to these exceptions, I would mention only one type of correlation which appears to me more or less valid. This is the statement that with an increase in size and density of the population, its social differentiation, whatever may be its form, and its technical division of labor, are likely to increase also. (See Durkheim's theory analyzed further.) But, as we have seen, even this broad correlation is far from being close, and the lines of both processes do not always go parallel. The curve of social differentiation often proceeds apart, sometimes even in the opposite direction from the curve of density and size of population, while their points of maximum and minimum, or points of inflection in their cycles quite often do not coincide. In brief, there is a tangible, but far from close correlation. With the exception of this, I wonder whether there is any valid correlation among the hun-

¹⁰⁸ See the facts in my *Social Mobility*, *passim*. See also FAHLBECK, P. E. *Die Klassen und die Gesellschaft*, Jena, G. Fischer, 1923.

dreds of "pseudo-correlations" abundantly supplied by various "sociological law-makers"

IO SIZE AND DENSITY OF POPULATION CORRELATED WITH INVENTIONS AND MEN OF GENIUS

Discussing the correlation between demographic factors and the progress of technical inventions, I indicated the principal reasons for expecting that an increase in the density and size of the population would favor an improvement in the technique of production. For similar reasons, a considerable number of the authors contend that increase in the density and the size of a population tends to increase the progress of mental activity, and the number of men of genius and talent. These theories have been laid down by A. de Candolle, A. Coste, McKen Cattell, S. Fisher, P. Jacoby, A. Odin, G. R. Davies, F. Maas and others.¹⁰⁶ The principal inductive argument in favor of such a theory consists in the statistical finding that cities produce a greater quota of such men than the country, and the densely populated areas more than the less densely populated ones. Here are a few figures which may serve as examples of these findings. According to S. Fisher, per every 10,000 population of the specified categories in America, the following number of the notables mentioned in *Who's Who* (1922-23) were born in these different localities: farm population, 1; village (up to 8000), 8.5; small city (8000-50,000), 6.5; large city (50,000 and more), 6.0; suburb of large city, 11.6.¹⁰⁷ According to Davies, the coefficient of correlation between the density of the population and the fertility in prominent men of letters in America is: for 1850, +0.60, for 1860, +0.72, for 1870, +0.76.¹⁰⁸ The findings of several investigators

¹⁰⁶ See CATTELL, J. MCK. *American Men of Science*, 2d ed., pp. 555 ff., 568 ff., the same, 3d ed., pp. 784 ff.; DE CANDOLLE, A., *Histoire des sciences et des savants*, Genève-Bale, 1885; ODIN, A., *Genèse des grands hommes*, Paris, 1895; MAAS, F., 'Ueber die Herkunftsbedingungen der Geistigen Führer', *Archiv für Sozialwissenschaft*, 1916, pp. 144-186; FISHER, S., 'A Study of the Type of the Place of Birth,' etc., *American Journal of Sociology*, March, 1925; DAVIES, G. R., 'A Statistical Study of the Influence of Environment,' *Quarterly Journal of the University of North Dakota*, Vol. IV, pp. 212-236; JACOBY, P., *Études sur la sélection chez l'homme*, Paris, 1904, for other data and references see my *Social Mobility*, Chap. XII.

¹⁰⁷ FISHER, *op cit*, p. 552, Table I.

¹⁰⁸ DAVIES, *op cit*, pp. 221 ff.

are similar in their essentials. Shall we conclude from this that the greater the density, the greater will be the number of prominent men produced? Do these findings really prove that density, rather than any other factor, is responsible for the higher number of prominent men produced in the cities, and in the more densely populated areas? A mere glance at the given figures will make such a conclusion questionable. In the first place, we see that though the number of prominent men produced in the cities is greater than in the open country, this number decreases as we pass from the villages to the cities, and from them to the big cities. The results obtained by Davies are similar. This contradicts the statement that the number increases parallel with the increase of the size and density. It also raises doubt as to whether density really is the responsible factor. Perhaps it is only a concomitant mask under which quite a different factor operates. This hypothesis is supported by a series of facts. If density were the decisive factor, then the city proletariat would have to produce a greater number of prominent men than the peasantry of the open country. The facts collected by Maas and Fisher show that this expectation is not warranted. The city proletariat in the past, as well as in the nineteenth century, has been much less fertile in the production of prominent men than the peasantry. Furthermore, if the density of the population were the responsible factor the number of the men of genius produced per a definite number of the population would have to increase along with an increase in the density of Europe's population during the nineteenth century. In spite of the great increase in density and the great growth of cities, the quota of great men produced at the end of the nineteenth century seems not to have been greater. The same fact in regard to the eminent men of science in America has been indicated by McKen Cattell. In the period from 1900 to 1910, the big American cities considerably decreased their quota of these men.¹⁰⁰ Furthermore, if density were the responsible factor, the districts of the cities with overcrowded dwellings would have to produce a high quota of the men of genius. As a matter of fact, they produce the smallest quota. The same conclusion is obtained by a comparison of dif-

¹⁰⁰ CATTELL. *op. cit.*, 2d ed., pp. 568 ff.

ferent countries according to their density, on the one hand, and according to the number of men of genius and talent, per 10,000 or 1,000,000 population, on the other. Not all densely populated countries top the list of those with the greatest number of geniuses and men of talent produced. Finally, even if the number of geniuses were increasing with an increase in the size of the cities, and not all the least densely inhabited countries were at the bottom of the list,¹¹⁰ (which is not true), this would not prove that density is the responsible factor. This situation might have been due to the selective character of city population, to the attraction of all talented people to cities, and to the transmission of their talents to their posterity born in the city. It may be due also to the greater educational facilities of the big cities, and to other similar conditions. These considerations are enough to contend that, if density and talent are correlated, the correlation is loose.

What has been said of men of genius, may be said of inventions in their correlation with the size and the density of population. By making the interchange of ideas more intensive, a greater density and size of population may facilitate a lucky combination of ideas, resulting in new inventions. On the other hand, a greater density facilitates a too tight social cohesion, a mob mind, and passive imitation of crowd patterns, which rather hinders the development of the initiative necessary for new inventions and original achievements. For these reasons, it is quite understandable why the stream of inventions does not always increase with an increase in size and density of population, why many densely populated countries (like China or India) have been stagnant, tradition bound, and poor in inventions during several centuries, why many of the greatest inventions ("domestication" of fire, domestication of animals, language, grammar, agriculture, use of metals, the first boat, first tools, machinery, utilization of wind, creation of pottery, building of dwellings, invention of first moral, juridical, and religious ideas, first mythology and poetry, and so on) were made under conditions where density of

¹¹⁰ Compare for instance the list of densities of population of different countries with Huntington's table of their rank of civilization *Civilization and Climate*, Chap. XI.

population was exclusively low and the size of the groups small; why a great many inventors and creators have lived a relatively isolated life, why men who spend their time in crowds, going from one group to another, are rarely the men of an original mind, and so on. In brief, density and size of population are, beyond some degree, neither sufficient nor necessary conditions for invention. In cooperation with other factors they may sometimes facilitate inventions, but no more. We must not overestimate their significance and their correlation.

II DEMOGRAPHIC FACTORS CORRELATED WITH MORES AND CUSTOMS

J. Frazer, M. Kovalevsky, W. G. Sumner, H. Spencer, E. Westermarck, E. Waxweiler, A. G. Keller¹¹¹ and many others have shown that the folkways, *mores*, and customs of peoples are not something incidental, but represent the result of a great many trials and errors, or of the experiences of a great many individuals during several generations. In other words, they are, to a great extent, selected, and the most suitable under the existing circumstances. If not in all, at least in a great many cases, such a statement is likely to be true. For this reason it is probable that those *mores*, folkways, and customs which pertain to the practices connected with the phenomena of sexual intercourse, conceptions, birth, marriage, death, and generally with the phenomena of the regulation of the number of individuals, are to be directly or indirectly correlated with demographic factors. In groups which feel a pressure of population, or are overpopulated, there must appear "folkways" and "*mores*" whose purpose is to check an increase of their population. In groups which are underpopulated, there must appear "folkways" and "*mores*" whose purpose is to facilitate an increase of their population. Correspondingly, many practices, like infanticide, abortion, polyandry, postponement of marriage, or the utilization of contraceptive means, and

¹¹¹ See FRAZER, J. G., *Psyche's Task*, London, 1913. SUMNER, W. G., *Folkways*, 1906. WESTERMARCK, E., *The Origin and Development of the Moral Ideas*, Vol. I, London, 1906. KOVALEVSKY, M., *Coutume contemporaine et loi ancienne*, Paris, 1893. WAXWEILER, E., "Avantpropos" in *Bulletin mensuel of the Sociological Institute of Solvay*, 1910, No. 1. KELLER, A. G., *Societal Evolution*, N. Y., 1915.

so on, are likely to be permitted or approved in "overpopulated" societies while the opposite practices and *mores*, whose purpose is to facilitate an increase of population, are likely to be approved in "underpopulated" societies. In this way, *the demographic factors may stamp, to some extent, the character of the moral, juridical, religious, and other forms of conduct pertaining to the above phenomena*. This expectation seems to be warranted to some extent. Carr Saunders has shown this in regard to the simple peoples, as well as partly in regard to the more complex societies. The "population politics" of France are rather opposite to the projected measures in Japan or China. Increasing pressure of the population of the European societies during the last few decades has been followed by an expansion of the methods of birth control and by factual and juridical legalization of their propaganda. In brief, the character and transformation of folkways in these fields seems to show some tangible correlation with the demographic factors. They must be taken into consideration in an elucidation of the problem of why the *mores* of a given society in this field are such and such, and why they are transforming in such and such direction. But again, we must not overstress the role of the demographic factors even in this restricted field. Still less tangible is their role in the field of the *mores* which are only remotely connected with the phenomena of population growth and vital processes.

12 DEMOGRAPHIC FACTORS CORRELATED WITH OTHER IDEOLOGICAL PHENOMENA

Several authors among them F. Carl and C. Bougle especially, have tried to interpret a series of ideological phenomena in the light of the demographic factors. Let us briefly glance at their theories.

Size and Density of the Population Correlated with the Evolution of Language—Trying to prove a decisive role for the demographic factors in a causation of the ideological and psychical variations, Carl takes the evolution of language and the character of religious ideas to corroborate his fundamental proposition. "The denser a population, the bigger the size of the group, and the more heterogeneous its individuals, the richer will be

the amount of experience of the society, and the more intensive its intellectual life " ¹¹² This general proposition is corroborated, in the first place, by the evolution of language. Carli's arguments are as follows: "The greater the density of a population, the greater the number of the substantives (and the verbs) in the language" because the experiences of the members of such a society are more numerous and manifold, requiring a greater number of words to express them than the experiences of a less dense society. To this he adds that the curve of the evolution of a language is parallel to that of an increase in the size and the density of population: the Roman language quantitatively and qualitatively reached its climax of development at about the first century A D, and, after that time, began to go down parallel to the process of depopulation of Rome so that it has almost disappeared since the fifth century A D ¹¹³

I am not in a position to say to what extent Carli's proposition is true, but I can make the following statements. First, Carli's, and all "sociologistic" theories of language (see the chapter about the sociologistic school) are right as far as they contend that without social contact and some density of the group, language and grammatical rules could not appear and grow. I agree also that when the population of a society is decreasing, it is likely to be followed by a decrease in the area of diffusion of its language. However, I doubt seriously that the number of substantives and the verbs of a language is proportional to the density of a population. For instance, the density of the population of Russia is less than that of the majority of the European countries, nevertheless, the number of the substantives and the verbs of the Russian language is certainly not less than that of any other European language. I doubt also that the language of the denser city population is richer, better, and more colorful than that of the country population of the same society. I doubt again that the imagination and fantasy of the city population or those of densely populated industrial countries are richer than those of the country population, or those of the people of more densely populated industrial countries than those of the less densely populated agricultural countries. I think also that the grammar of a

¹¹² CARLI, *op cit*, pp 187 ff., 202 ff

¹¹³ *Ibid*, pp 202-205

language was, in essence, created in the early stages of a group, when its size and density were insignificant. Furthermore, I do not see that the area of expansion of a language is in close proportion to the density of a country's population. The density of the population of Belgium, Holland, Bengal, or the northwestern provinces of India is higher than that of Great Britain, and yet, English is spoken in an area several times greater than the area where the Dutch, the French, or the Indian dialects are spoken. The density of Russia's population is lower than that of the majority of the European societies, but Russian is spoken by a number of people probably greater than the number speaking any European language, with the exception of English. The depopulation of ancient Greece began at about the end of the fourth century B C., and yet the area of the Greek language in the third and second centuries B C. was probably greater than it was before. I also doubt a close correlation between an increase and decrease of the population and the qualitative progress and regress of a language. The rate of increase in the Roman population had already begun to go down at about 150 B C. However, only at the end of the second century A D. did there appear the first serious symptoms of decay in Roman literature and literary style. The density of the population of England, France, and Germany increased from 1820 to 1914. Yet one may doubt whether the English, the French or the German languages and literature improved during this period or are better now than they were in the eighteenth or at the beginning of the nineteenth centuries. The same is still more true in regard to music and many forms of arts.

These examples, which may be increased greatly, seem sufficient for raising a serious question as to the validity of Carl's proposition.

Size and Density of Population Correlated with Religion, Mysticism and Fetishism—The psychology of a less densely populated society tends to be more religious, more mystical, more fetishistic, and less heterogeneous than the psychology of the more densely populated societies. Such is the next correlation which Carl tries to establish. The arguments given in favor of the proposition consist in the following indications. The thinner

population of the country is more mystical and religious than the population of a city. In the less densely populated societies, words are given some mystical and sacred value, causing such societies to be predominantly "legend making." With an increased density of population, irreligiosity, positivism, heresies, individualism of opinions, and heterogeneity, tend to increase.¹¹⁴ I am afraid that in his proposition and arguments, Carli mixed quite a different series of facts. The few and one sidedly interpreted facts given by Carli to corroborate his proposition may be confronted by a series of opposite facts. For instance, China, and many provinces of India are certainly more densely populated than America or many countries of Europe. However, we cannot say that in China or India there is less "legend making" or a greater variety and heterogeneity of ideologies and various heresies or less mysticism than in the less densely populated European countries. It is doubtful also that the city population is less 'mob minded' than the country population. The opposite is likely to be more true. I doubt further that the city proletariat is less inclined to "legend making" than the country population. The difference is rather in the kind of legend produced. The farmer makes a sort of hero out of some Christian individual, while the proletarian is doing the same out of some demagogue. The country people may make a legend out of one individual, the city people, out of some other one (out of Gloria Swansons, Valentinus tennis stars, boxing and football stars, some "chiro-mancer," ballet-girls, Menckens, Bernard Shaws, Lenins, K. Marxs, J. J. Rousseaus, Voltaires, and so on). Pareto (see the chapter about Pareto) has shown that only the forms of superstitions and legends are changing while their essence remains practically the same. Instead of historical religion the city population may have the religion of "socialism," "communism," "anarchism," "liberalism," "nationalism," the "religion of progress," of "pacifism," of "reason" or any other fashionable "ism." In spite of their pseudo-scientific forms they are as unscientific, mystical, and superstitious as the historical or traditional beliefs styled contemptuously by them as "superstitions." The same may be said of the tendency to ascribe to words some mystical and

¹¹⁴ CARLI, *op. cit.*, pp. 206-211

magic significance. Here also the more and the less densely populated societies, the city and the country, differ not in that one group does a thing while another does not, but only in the forms of doing it. In the country population there may be some words given a sacred or magic influence, in the city population the same is done in regard to some other words. "Fetishization" of words as well as other phenomena, is an eternal fact. Its forms vary, but its essence remains.¹¹⁵ That is all the difference.

For these reasons, I do not think Carl's correlations are valid. There is still less reason to admit any correlation between the character of religion (Buddhism, Christianity, Mohammedanism, etc.), and demographic conditions, because each of such religions has been spread among the large and the small, the densely, and the non densely populated societies.

Demographic Factors Correlated with Equalitarian Ideology and Movements—An attempt to establish a correlation between demographic and ideological phenomena is given by Professor C. Bouglé (1870—) in his book *Les idées égalitaires*.¹¹⁶ The purpose of the book is to answer the problem: What are the factors which are responsible for the growth and diffusion of the ideologies of equality, levelling and democracy? The author's study leads to the conclusion that such factors are size, density, heterogeneity, and mobility of the population. An increase in these characteristics of the population tends to facilitate the diffusion, popularity and power of ideologies of equality, and of democratic political institutions. The principal corroborations of this proposition are partly "speculative" partly factual. The speculative corroborations consist in some analogies with a complex biological organism, and in a series of statements typical of the sociologistic school. Some of these are, that with an increase in the size of the population and its density, social differentiation increases, that this frees an individual from a tight attachment to the group, making him more individualistic and "cosmopolitan" at the same time, that such a transformation naturally undermines the caste principle and facilitates an appreciation of the

¹¹⁵ See SOROKIN, *Sistema sociologii*, Vol I pp 177-193.

¹¹⁶ 2d ed. Paris, 1908. see also BOUGLÉ, C., *La démocratie devant la science*, 3d ed., 1923.

human being generally, regardless of the group from which he comes and to which he belongs, that a greater density of population favors a greater intensiveness of mental interaction, in this way undermining many group prejudices and superstitions, and that an increase in the size and the density of the population makes more intensive the contact of the men of various races, classes, families, religions and so on, helping to increase their mutual understanding. Such are the principal speculative reasons in favor of Bougle's theory. His factual corroborations are essentially as follows. In the first place, he states that only twice in the history of mankind has an extraordinary diffusion of the ideologies of equality occurred,—once in the later period of the Roman Empire (in the period of Christianity and Stoic philosophy)—and again in the modern period of European history, opened by the great French Revolution. Analyzing the specific conditions responsible for the great diffusion of the equalitarian ideas at these periods, Bougle concludes that they consisted in the above factors of large size, high density, heterogeneity, and mobility of the population. The same conditions are given within modern democratic societies. Further, Bougle indicates that, in the Roman Empire as the size, density, and heterogeneity of the population were growing, the privileges of birth and order were disappearing. The next proof is given in the indication that the ideologies of freedom, democracy, and equality were originated and developed in cities. To this is added the statement that the countries with a greater density of population, like Lancashire, where we have 707 inhabitants per square mile, are more democratic and equalized than the countries with a low density of population, like Russia. A series of other indications concerning the less intensive dogmatism of the followers of universal religions, compared with that of the followers of small religious sects, the increase in the popularity of equalitarian ideologies and institutions with an increase of social mobility and contact and some other considerations of this kind, close the series of Bougle's interesting and suggestive corroborations.

Shall we recognize Bougle's theory as valid? I doubt it. Although we may find several interesting ideas in the book, the main contention of the author appears questionable to us. In the first

place, I cannot agree at all with the statement that a diffusion of the equalitarian ideologies and institutions took place only twice in the history of mankind. Omitting primitive societies for the moment, I still wonder why the democracies of Athens, the Italian mediæval City-Republics, the forest cantons of mediæval Switzerland the Buddhist revolution in India and in several other countries of the East, the Republic of Geneva founded by Calvin, the Lollards' and Levellers' movement in England, and the Commonwealth of England, founded by the revolution of the seventeenth century, the great equalitarian and communistic movements in the history of Persia (Mazdack's revolution), in ancient Egypt (social revolution described by Ipuwer), a series of similar movements in the Arabian and the Mohammedan caliphates, the series of the mediæval equalitarians and communists, and the socialist movements and revolutions followed by a corresponding diffusion of the ideologies of equality, and democratic, communistic and socialistic institutions (the Bohemian revolution of the fifteenth century, the foundation of the communist state of Taborites, the communes of Thomas Munzer of John of Leiden the sects and movements of the Kataris Patarians, the Lyons Poor the Arnold of the Breshia, the Ciompi, and so on), and a hundred similar phenomena are not mentioned by Bougle? Each of them, whether in their ideologies practical demands, reforms, or institutions created has been at least as radical in the recognition of the principle of equality as has Christianity or the Stoic philosophy or as the Declaration of the Rights of Man promulgated by the French Revolution. Even in their practical effects, many of these movements have been at least as efficient as Stoic philosophy and Christianity during the first three or four centuries of their existence. In brief, Bougle's very starting point is fallacious and through its fallacy it naturally spoils the majority of his conclusions. If the author had taken into consideration at least the above equalitarian movements, their ideologies, their reforms, and their diffusion he evidently could not have come to the conclusion that the equalitarian movement is possible only in large, dense, mobile and heterogeneous societies because the above movements have happened in the large and the small in densely and non densely popu-

lated societies and with both a homogeneous and heterogeneous population

Now let us ask whether or not it is true that the greater the size the density and the heterogeneity of a society's population the less it will be stratified and the more equalitarian democratic and equal it will be. I am convinced that such a statement is fallacious. A great many primitive groups have been of small size density and heterogeneity of their population yet they are less stratified and rather more self governed than almost all the large and densely populated societies with heterogeneous populations. In simple societies economic contrasts were less than in any contemporary equalitarian society. Occupational stratification and differentiation were less also. Political privileges and disfranchisements of their members were less conspicuous than in any contemporary democratic society. These small groups did not often have any hereditary government or aristocracy or any caste or class division. Their leaders were elected. They enjoyed self government. To many of them it was possible to apply what Tacitus said of the ancient Teutons: *Duces ex virtute legunt. De minoribus principes consultant de maioribus omnes*. Mazzarella Hobhouse Wheeler and Ginsberg Lowie and a series of other investigators have shown this clearly.¹¹⁷ This means that contrary to Bougle the most equalitarian organization is obtained where the size and the density and the heterogeneity of a population are the lowest. More than that in my study I have come to the conclusion that each time the size or the heterogeneity of a society's population increases social stratification or inequality increases rather than decreases.¹¹⁸ Other conditions being equal the groups with a smaller size and a less heterogeneous population are liable to be less stratified and more equalitarian than groups with a larger size and more heterogeneous population. This seems to be much nearer the truth than Bougle's proposition.

¹¹⁷ See MAZZARELLA *Les types sociaux passés* HOBHOUSE, WHEELER and GINSBERG *The Material Culture and Social Institutions of the Simpler Peoples* pp. 50 ff. See the table given in this book in the chapter about the economic school. See the facts and other references in SOROKIN *Social Mobility* Chaps. III VI.

¹¹⁸ See *Social Mobility* Ch. V.

If further proof be needed it would be enough to compare existing societies according to the size and the density of their population, on the one hand, and the degree of democracy, self-government, political and economic equality, on the other. This would soon show that these two curves do not run parallel at all. China and many Indian states are populated more densely, and have a size much greater than Norway, or Sweden, or Denmark, or Finland, or Canada, or New Zealand and yet, according to Bougle's criterion of equality, the former societies are much less equalitarian than the latter. The density of the population of the United States of America is much less than that of France, or Italy, or Rumania, or Japan, not to mention many Asiatic countries, yet nobody would say that the United States is nearer to a caste regime, or is less democratic than any of these countries. In Rome, mentioned by the author, the process of equalizing its subjects in the form of an extension of the rights of citizenship went on not only in the period of an increase in the density of the Roman population, and during the enlargement of the boundaries of the Empire, but continued for a long time after the process of depopulation took place. (Caracalla's law was granted in A.D. 212, while the birth rate had begun to fall already at about 150 B.C.) I question also the validity of Bougle's statement that cities with a more dense and heterogeneous population are more "equalitarian" or "democratic" than the country. If we ask where, in the city or in the country, are the greater inequalities of fortune, of privilege, of rank, and prestige, the answer is in the city. Therefore it is hard to think that this case may testify in favor of the criticized theory. It is useless to continue these contradictions. The conclusion which follows from the above is clear. There is no definite correlation of the equalitarian movement with either the size or the density or the heterogeneity of a society's population. The illustrations given by Bougle in favor of his theory may be confronted with facts which testify against it.

Bougle's statements concerning the rôle of mobility are more valid in this respect. Yes, mobility in some cases facilitates the expansion of equalitarian ideology and institutions, but not always, and not so much in the sense that it makes social inequali-

ties or social stratification less conspicuous, or less great, as in the sense that it substitutes some other basis for the social distribution of individuals within the social pyramid for the basis of birth or family status. The pyramid of social stratification or inequalities in mobile societies may be as high, and often is even higher, than in immobile societies (see my *Social Mobility*, Chaps. III-VI). The above reasons are enough to warrant questioning seriously the validity of Bougle's interesting theory. I think it, like several other theories of the correlation of demographic factors with ideological ones, is far from being valid.

13 DEMOGRAPHIC FACTORS CORRELATED WITH THE PROGRESS AND DECAY OF SOCIETIES

As almost all sociological schools have, the demographic school also has its own theory of the evolution of societies, or the law of their origin, progress, and decay. The best theory of this type is formulated by Professor Corrado Gini¹¹⁹ in his book *I fattori demografici dell'evoluzione delle nazioni*. F. Carli also added something of his own to the theory of Gini. Let us briefly outline the essence of Gini's theory of the progress and decay of societies.

The book opens with the statement that the decay of societies has taken place many times in human history. This leads to the problem of what the causes may be. After a criticism of several other theories, Gini comes to the conclusion that the principal cause of the evolution of a society is the demographic factor, which in various ways leads to many changes in the quality of the population and in its economic, political, and cultural organization. The theory starts with a statement that, independent of immigration, emigration, war, and other catastrophic phenomena, the play of demographic factors in a relatively short period may change the biological characteristics of the population in quite a normal way. This is due to the fact that each later generation of a group represents the offspring of only a small fraction of the previous generation. From two-fifths to two-thirds of any

¹¹⁹ Professor of Sociology at the University of Rome, president of the Italian Statistical Institute, editor of *Metron*; author of many valuable works. *Il sesso dal punto di vista statistico*, 1908. *Problemi sociologici della guerra*, 1921, etc.

previous generation die before marriage. Of the remaining part who marry, not all leave any posterity. In this way each subsequent generation comes practically only from one third to one-eighth part of the previous generation. This shows that a normal play of the demographic factors may, in a short period of time, greatly change the racial or the biological composition of a society. This is still more inevitable since, as a rule the procreation of the upper classes is less than that of the lower classes. Therefore owing to this differential fertility plus the above play of the demographic factors biologically a population changes very rapidly. At the same time, the lower procreation of the upper strata makes inevitable a permanent ascending current of climbers from the lower to the upper classes to fill the vacancies created by the lower fertility of the upper strata. They are doomed to die out, and their places are more and more occupied by newcomers from the lower strata. 'The land of the conquered is the grave of the conquerors' is an expression of this general phenomenon.¹²⁰

On the basis of these facts, Gini further formulates his "parabola of an evolution of the nations."

As the parabola of an organism's life has its reason in the different activities of its metabolism so I think may the curve of the evolution of a people be correlated with the different stages of the demographic metabolism between various social classes.¹²¹

After this, Gini outlines his parabola of the evolution of societies. In essence it is as follows:

Whether a society is founded by immigrants or by natives at its earlier stages there is no conspicuous social differentiation. Such stages are marked by a high fertility of the population. (This is valid in regard to the past societies such as Crete, Troy, Mycenae, Athens, Sparta, and others, and in regard to the population of colonial America, Australia, Canada, New Zealand and so on.) As a result of it, the size and the density of the population begin to grow. This results in an increase of social differentiation within such a population and finally leads to the appearance of differential fertility in its upper and lower classes. At

¹²⁰ GINI, CORRADO *I fattori* pp. 1-33.

¹²¹ *Ibid.*, p. 34.

the same time, the country becoming relatively overpopulated, a surplus of its population must emigrate, either peacefully or by means of war. Hence, intensive colonization and wars of expansion mark this period in the growth of a society. As a rule, those who are the most prolific, adventurous, and strong are the principal ones to emigrate from the country, and go away on military enterprises. In the process of its expansion, society mainly loses these elements. Psychologically this stage is marked by great patriotic and nationalistic enthusiasm by glorification of colonization and war for the country by considerable solidarity, and a psychology of patriotic readiness to sacrifice individual happiness and life for the nation.

Then, sooner or later, comes the next stage. Through emigration and loss in wars of expansion the society loses its most prolific, boldest and the most adventurous elements. As a result, the fertility of the society and the rate of increase of its population begin to diminish. This is augmented the more because the fertility of the already clearly separated upper classes has decreased enormously. The offspring of the lower classes, which also decrease their procreation are more and more compelled to fill the vacancies left in the upper classes by its lower and lower procreation. The population increase stops. The ascending currents of social circulation from the lower to the upper classes become more intensive. Many of the previous obstacles for such a circulation are put away. Society becomes more "democratic." At the same time, thanks to the decline of population growth and to the exploitation of colonies and subjugated countries, the economic well being of the society rises. The standards of living of all classes go upward, their comforts increase their tastes and desires become finer. The luxuries which could be found before only among the upper groups are now longed for by all classes. This leads to great progress in economic activity, and to the appearance of arts, music, and literature, while industries prepare on a large scale the objects of comforts and luxury. This is naturally followed by great industrialization of the society, by the growth of cities, by the development of commerce, and by increasing migration of country population to cities. Thus comes the period of commercial and industrial urban culture.

Politically this is followed by a transformation of the society in the direction of democratization psychologically by a transformation of the previous prolific adventurous military patriotic and heroic people into a nation of the small *bourgeois* —into the business men who look for and long only for money savings and an income. Economic prosperity facilitates so to speak an 'effemination' of the society. The elimination from it of its most prolific adventurous solidaristic and patriotic elements in the previous period and the exploitation of the colonies accompanied by economic prosperity make the society pacifistic. Military glory is now no longer in vogue and neither is nationalism. Vague pacifism and vague cosmopolitanism side by side with a small *bourgeois*' ideology take its place. Arts literature poetry and so on begin to prosper. The society feels itself happy and is sure in its future. Like Cicero who lived approximately at such a stage of the Roman Empire it thinks that Rome will exist at least ten thousand years.

But just as in the case of Rome which existed only about five hundred years after Cicero and which at his time was entering into the stage of its decline the society does not see that it is also at the beginning of the stage of its decay. Sooner or later the preceding stage is superseded by a new one. The first symptom of this decaying stage is manifested in the process of depopulation in the rural parts of the nation. Owing to the great decrease in actual fertility of the population and to a great migration of country people to the city agriculture begins to decline a lack of labor hands in rural districts begins to be felt more and more many regions begin to be depopulated and much land is forsaken. A series of economic conditions aggravates the situation of farmers and peasants still more urging them still more to decrease their fertility. As a result the country decreases more and more its inflow into the cities whose fertility is still lower. The decrease of the country population and its economic impoverishment lead to a decrease in the demands for the objects of urban industry. The nation begins to produce more than it can digest. This reacts negatively on the development of industry commerce and the economic situation of city people. Industrial crises of overproduction become greater and more

numerous. As a result, there comes an aggravation of the economic situation of the city laboring classes, and even in the city population as a whole. This is still further aggravated because the proportion of idle rentiers who live on the interest from their capital, and the professional classes who do not produce material values directly, is now much greater than it was before. Besides, in order to protect itself and its colonies and dominions, the government has to increase the taxes on a decreased population. All this results in an increase of social crises, disorders, and riots of the labor classes, who do not want to lower their standards of living. The class struggle becomes bitter and more pitiless. This, in its turn, only contributes to the aggravation of the situation. The government, ideologists, and scientists try to cope with the difficulties. Governmental interference expands enormously. It begins to control more and more the economic life of the society. At that period a belief in the omnipotent role of science and the intellectuals is especially conspicuous. In vain! The process of the disorganization of the society continues to progress. Finally, either "peacefully," or in a military way, the society reaches its last stage—decay. Its history is finished, and from the scene of history it is removed into its museum.¹²²

Such is Gini's parabola of the social evolution of a society, interpreted in the light of demographic factors.

The next part of the book is devoted to a corroboration of the scheme by a factual analysis of the history of Greece, Rome, and several other societies, especially by an analysis of the present situation in France which, according to the author, already is in its stage of decay (pp. 48-102). The majority of the European societies are supposedly about in the same stage. The final conclusion of Gini is that this parabola of social evolution is unavoidable. The only escape from it is through emigration and the founding of new colonies, by means of which it is possible to continue in a modified form the history of the metropolis, or the mother country. '*Avviene nello sviluppo dei popoli come in quello degli individui: raggiunta la maturità, cessa l'esuberanza delle manifestazioni vitali, si va a poco a poco chiudendo il ciclo dell'esistenza, ad essi riaprirne un altro. Ciò molte volte avviene.*'"

¹²² *Ibid.*, pp. 34-47.

Such is the somewhat pessimistic conclusion of the author of the parabolic curve of the evolution of a society

With a modification, but in essence similar to Gini's theory of the decay of nations, is the theory of Carli, which is as follows. With the decrease of the effective fertility of society, there comes a decrease in the number of inventions, and in the nations' "hope in possibilities" (*la fede nelle possibilità*). This reacts unfavorably upon the economic well being of a society. All this is followed by a transformation of its dominant psychology, the solidarity of its members decreases, while individualism and economic egotism increase, the ideal of the glory and the magnificent grandeur of the nation is superseded by that of the savings account and the hunt for money, while the ideal of military heroism is replaced by that of pacifistic comfort. The upper classes degenerate more and more, ceasing to resemble their predecessors.

Of the more detailed statements, it should be mentioned that, according to Carli, the more closed the upper classes are and the greater are the barriers for the ascent of the newcomers from the lower to the upper classes, the sooner the upper classes degenerate, and through that, the sooner comes the degeneration of the nation.¹²³

Now what is to be said of the validity of these theories? At the beginning, let us put aside the details of Carli's theory which are far from being accurate. The longest aristocracy in the world, which I know of, is the Brahmanic caste in India which, without army, money, or even organization, has held its unquestionable superiority during at least two thousand years and is holding it still. India continues to exist as a culture complex, while many other countries have disappeared. Yet the Brahman caste is almost absolutely closed, at any rate more closed than any other aristocracy known to me. More than that, I am inclined to think that the closed aristocracies have been existing successfully for a period at any rate not shorter than the open upper classes. The Spartan aristocracy was more secluded than the Athenian one, and yet the Spartan aristocracy, and Sparta, which was con-

¹²³ CARLI, *op. cit.*, pp. 235-258, 362-368. Somewhat similar is G. Rugeot's theory of the symptoms of decay, developed in his book, *La natalité, ses lois économiques et psychologiques*, Paris, 1918, especially pp. 12, 19, 152 and *passim*.

trolled by it, existed longer than the Athenian, with its more open aristocracy. Rome's glorious period had a much more secluded aristocracy of patricians and senators than did her decaying period of the second and third centuries A.D., when her upper classes were more open than before. Neither do we have any serious reasons for thinking that the aristocracy of England during the last thousand years, or during the last two centuries, has been more open than that of France.¹²⁴ For this reason, Carli's reference to the different fates of England and France, as a proof of his contention, is unconvincing. Furthermore, the history of the secluded royal and old aristocratic families, when compared with that of the families of the new "aristocracy" which are less severe in their intermarriages, shows that these old families have been degenerating rather more slowly than the new ones. There is no need to increase these examples. The statement of Carli is one-sided. The openness or seclusion of an aristocracy seems to be not so important as its character. If the aristocracy is biologically sound, and if it keeps its "blood" from contamination through the exclusion of all contaminating elements, (elimination of weaklings, deficient children, deficient members, etc.), its seclusion and inbreeding seems to go on without degeneration.¹²⁵ If vigorous measures are not taken to eliminate contaminating elements, then inbreeding may very quickly lead to the aristocracy's decay. On the other hand, if, in open upper classes, selection and recruiting of newcomers proceed properly, then such an aristocracy may successfully exist and rule for a long time. If the "refreshing blood" is picked up wrongly, and the newcomers represent something far from superior, biologically and mentally,—which may easily happen if access to the upper classes is too easy,—then such an aristocracy is a pseudo aristocracy, it is doomed to be incapable and through its deficiency it may facilitate the ruin of the country.

Now let us turn to Gini's parabola of the evolution of nations. In the first place, it cannot pretend to be universal. Like a great many other theories of the progress and decay of societies, it is

¹²⁴ See my *Social Mobility*, Chaps. VII, XV, XXII.

¹²⁵ Compare SAVORGNAN, F., "Nuzialità e Fecondità delle Case Sovrane," *Metron*, No. 2, 1923, p. 224; PARETO, V., *Traité de sociologie générale*, Paris, 1919, pp. 1658 ff.

constructed principally on the basis of the history of Rome and Greece. However not all countries follow a similar parabola in their history. Take for instance China or India. These two countries have already existed several thousands of years and yet they are still alive showing at the present moment some signs of a new awakening. The whole scheme of Gini is practically inapplicable to their history. Perhaps this is due to the fact that both countries seem to have always had a high procreation and their upper classes have probably not known differential fertility. Thus however means that neither the fact of a decrease in the fertility of a people in the course of its evolution nor a lower fertility of the upper classes is something universal and unavoidable. Since they are not unavoidable and not universal the whole scheme of Gini which is based upon these two foundations also becomes not universal and not inevitable for all societies. The theory at the best may be applied only to some peoples. Such is the first limitation of the theory. Furthermore it has several assumptions which are questionable and which could in no way be regarded as universal rules. For instance can we say that the first stages of a society are always marked by an intensive procreation and a rapid increase of its population? In some cases it is so in some others it is not. The group or the society on account of many factors (they are indicated by Carr Saunders) may be almost in a stationary state for an indefinite period of time. Then the stage of expansion colonization and emigration with all the consequences of these phenomena may not take place for such a people and their history may go on along quite different lines. Furthermore granting that the first stages of a society are marked by a rapid increase of its population can we say that emigration colonization and expansion are the only possible results of such an 'overpopulation'? In the above we saw that they sometimes take place but sometimes not. The combination of circumstances may be such as to make it impossible for the society either to colonize make a conquest or conduct an emigration. Then there come other means for checking the population surplus and growth such as famine increase of the death rate decrease of the birth rate abortion and all the other means described by Carr Saunders. This means again that the subsequent

history of such a people will be different from Gini's parabola. Its generality thus becomes less and less universal. Let us go further. Is it true, for instance, that in the period of expansion of such a society, the most prolific, bold, and energetic elements of the population go away from the mother country? Gini puts this statement quite dogmatically. His only argument in favor of his theory is that for the members of prolific families it is more difficult to find a place within the mother-country than for the members of the less prolific ones. But to this it may be objected that, since, according to Gini himself, the emigrating elements are more capable and energetic, they have more chances to find places within the mother country than the less capable people. For this reason, we would expect that the emigrants are a rather less capable people than those who remain in the country. In brief, the discussed assumption of Gini is not proved, and we know little about its accuracy or inaccuracy. Therefore, all conclusions based on this assumption become uncertain, and the whole theory becomes something which may or may not be valid.

The next dogmatic assumption of the theory is an increase of economic well-being in society due to the emigration of its prolific members, and to the decrease of the effective fertility of the society. In the above we have seen that not every relative depopulation is necessarily followed by an increase of economic well being. Sometimes it happens, sometimes not. If this is so, then, again, all later economic, political, and psychological changes depicted as the results of such an increase of well being, might not happen, and the history of the society may follow quite a different curve of evolution than that depicted by Gini. A series of peoples have actually followed this curve, which differs much from Gini's parabolic line of development.

Without mentioning any of the further assumptions, the above is enough to show that Gini's scheme can in no way pretend to be a more or less general formula for the evolution of society. In the best case, it may be applied to some peoples. But, in view of the above assumptions of Gini even there it remains uncertain as to what extent their decay is determined by demographic factors, as indicated by the prominent Italian statistician and sociologist.

His generalizations are still more questionable in view of the facts of the decay of many societies (Poland Carthage Bohemia and so on) due to purely military causes that is to conquest by other peoples In many other cases—Babylon Assyria Egypt the Arabian caliphates Turkey the empires of Genghis Khan Tamerlane and other old countries—we also do not find any serious reason for admitting that their decay was caused by Gini's demographic factors or that it proceeded according to the line of his parabola

Thus we come to the conclusion that Gini's theory must be limited greatly and should be further tested even in those parts which seem to be valid With these reservations and objections it appears to contain a modicum of truth for the peoples to whose history it may be applied One of its contributions is that it makes it impossible to disregard the role of the demographic factors in any scientific interpretation of the phenomena of the progress and decay of nations Its practical value is in its warning to nations to be careful in their policy of birth control and the reduction of their population if they want to have a long and glorious history

Gini's central idea that the depopulation or decrease of effective fertility is a factor of decay seems to be near the truth in spite of the popularity of the opposite opinion at the present moment His arguments in favor of his statement may be backed by a series of others which point to the same fact Among these arguments should be mentioned the following one a low birth rate and a low mortality through the elimination of natural selection are likely to lead to a survival of all the innate weaklings and through this to a contamination of the innate quality of the people¹⁶ In this way they facilitate an aggravation of not only the quantitative side of the population problem but its qualitative side also This in its turn greatly contributes to the factors of a people's decay and makes the attempt to stop this decay difficult

14 GENERAL CONCLUSIONS

The preceding survey shows that the demographic school in sociology is one of the most developed Numerous investigators

¹⁶ See my *Social Mobility* Ch. XX.

have succeeded in showing the importance and efficiency of demographic conditions in almost all fields of social phenomena. If we cannot say that all these attempts have been successful or quite accurate, we have to admit that a considerable number of them are likely to be accurate at least in part, and some of them are as near to reality as it is possible to arrive in the present stage of social science. The school has thrown light on a series of social phenomena. It has supplied us with a series of probable correlations. For these reasons the school has as much right to its existence as has any other sociological school. Putting away its mistakes and one sidednesses we may gratefully take its valuable contributions to the science of social phenomena.

CHAPTER VIII

SOCIOLOGISTIC SCHOOL

I GENERAL CHARACTERISTICS OF THE SCHOOL

As is well known, in August Comte's classification of sciences into Astronomy, Physics, Chemistry, Physiology, and Social Physics, or Sociology,¹ sociology is put immediately after physiology or biology. Psychology, as a science preceding sociology, is omitted. This has called forth a serious criticism of Comte's classification by J. S. Mill, Herbert Spencer, and many others, who have insisted on the necessity of putting psychology after biology and before sociology, as its immediate basis. This has led to the appearance in sociology of the psychological school which tries to build sociology on psychology and to explain social phenomena by means of the psychological, rather than to explain psychological phenomena through the biological and sociological. Further characteristics of this school are that the majority of its partisans are inclined to interpret social phenomena as a derivative from the activity of individuals rather than trying to explain the individuals and their activity through social reality or society.

In spite of this, Comte's classification has found its followers. They think that in omitting psychology from his classification, he was quite right. They maintain that sociology has to be built immediately on biology, while psychology needs sociology as one of its bases. According to their opinion psychological phenomena need to be interpreted through sociological but not *vice versa*. Society, or sociality is the psycho-social reality of *sui generis* which exists apart, and is different from, that of the individuals who compose a society.² Sociological regularities are different from, and cannot be reduced to, the psychological. Such, in gen-

¹ COMTE, AUGUSTE, *Positive Philosophy*, tr. by Martineau, pp. 44-46, 394-395, N. Y., 1855.

² See the chapter about Bio-Organismic School, §1.

eral, are the lines of division between the so called "psychological" and "bio sociological," or, simply, "sociologistic" schools, which were quite conspicuous a few decades ago, and which, though much less definite now, are not yet entirely obliterated. The above, together with the fact that among the followers of "the sociologistic school" there are very prominent sociologists, and that they have contributed a great deal to the science of sociology through a clarification of problems only slightly touched by other schools, makes it appropriate to separate this group from other schools, and to survey briefly the works of its most prominent representatives. The very source and essence of sociality, these sociologists see in the phenomena of social interaction. Their investigations try to interpret social and psychical phenomena as a derivative of various forms of interaction. Their causal analysis consists essentially in a correlating of studied phenomena with various conditions of living together, or, in other words, with social conditions. Therefore all the theories which explain a certain social or psychical fact through its correlation with a certain social condition, are to be regarded as a variety of the sociologistic school.

For the sake of clearness, we shall take in the first place, the most representative sociologistic theories which give a *general system* of sociologistic interpretation. Thus being done we shall pass to the *special theories* which take a certain social condition as a variable (religion, mores, family, economic condition etc.) and try to show its effects, or its functions in various fields of social phenomena. In this way we shall be able to obtain a more or less adequate idea of the school. As a typical example of the *general* sociologistic theories we shall take (a) the neo positivistic school of E. De Roberty and the theories of A. Espinas, J. Izoulet, Draghicesco, Ch. H. Cooley and others, (b) the school of E. Durkheim with his collaborators, (c) the theory of L. Gumplowicz and of his followers, (d) the "Formal School".³

³ Among the earlier representatives of the contemporary sociologistic school we have Henri C. Carey. In his *Principles of Social Science* Vol. I 1858 he sets forth all the essentials of the school, and Durkheim's theory of the division of labor. Here however I do not give space to his theories because their characteristics are given in the chapter on the Mechanistic School. Similarly, the names of Lazarus and Steinthal are to be included among the originators of

Having analyzed these general systems of sociology, we shall turn to the principal types of the special sociologistic theories and briefly survey them. Such seems to me the best way to orientate ourselves in the complex and vast field of contemporary sociologistic interpretations. Now let us say a few words about the predecessors of modern sociology.

2 PREDECESSORS

The ideas that man's mind, behavior and his other characteristics depend upon social interaction, and society, that social regularities are *sui generis*, that society is something different from a mere sum of its individual members, and that there is a correlation between the fundamental categories of social phenomena and those of personality traits, these ideas were all known very long ago. The bulk of the old Indian philosophy and ethics, (especially that of Buddhism,) is based upon the idea that our "I" or "Self," with its empirical properties, sufferings, and joys is a product of social contact and exists as long as the contact exists. "Self," the Hindu writers declared, can only be overcome by "destruction of contact," "separation," "isolation" or "giving up."

Contact is the cause of all sensation, producing the three kinds of pain or pleasure. Destroy contact and sensation will end, names and things will cease, knowledge and ignorance will perish and the constituents of individual life will die.

This is the way to "escape from self, or from 'I'." ⁴ In modern terminology this means that the very phenomenon of "I" or an individual "Self" and its psychological qualities (desires, emotions, ideas, etc.,) are the result of social contact and interaction. Confucianism, as a system of applied sociology, is essentially a socio-environmental theory.

the school." Although giving an enormous mass of materials, they however, did not construct a clearly cut system of sociology. See LAZARUS M., and STEINHAL, H., *Zeitschrift für Völkerpsychologie und Sprachwissenschaft*, Vol. I, 1860, pp. 1-73, 437-477. Vol. II, pp. 54-62, 393-453. Vol. III, 1865, pp. 1-94, 385-486. Vol. XVII, 1887, pp. 233-264.

⁴ "Life of Buddha by Asvaghosha Bodhisattva" in *The Sacred Books of the East*, The Colonial Press, N. Y., pp. 369 ff. See also "The Dhammapadam," *ibid.*, *passim* and Chaps. V-VI. See also "The Upanishads," *The Sacred Books of the East*, Vol. XV, *passim*, Oxford, 1884.

By nature, men are nearly alike, by practice, they get to be wide apart. There are only the wise of the highest class, and the stupid of the lowest class, who cannot be changed. When a child is trained completely, his education is just as strong as his nature, and when he practices anything perpetually, he will do it naturally as a permanent habit.

The habits are inculcated by family and other social groups with the help of ceremonies, music, poetry, imitation and other social agencies. Hence, an exclusive importance is given by Confucianism to "filial piety," the 'five relationships,' rules of propriety and to social environment generally. In this respect Confucianism contains all the essentials of the modern sociologicistic theories, especially of the contemporary theory of *mores* developed by W. G. Sumner, and "the family sociology" developed by Le Play's school and Ch. H. Cooley. Confucianism also stresses that "the heart of a man who observes no rules of propriety is the heart of a beast," which means that a man who is not modified by social environment is but an animal.⁵

Plato's *The Republic* is permeated with similar ideas. His system of a perfect state is based on selection, as well as on training, through a corresponding modification of social environment. In many places he draws a correlation between the character of the state and the character of the individuals, saying "As the State is, so the individuals will be," and *vice versa*. Finally, he stresses the idea that man outside of social control is but an animal.

As the government is such will be the man. In the individuals there are the same principles and habits which there are in the State. Governments vary as the character of men vary, and there must be as many of the one as there are of the other. Or perhaps, you suppose that States are made of "oak and rock" and not out of the human natures. If the Constitutions of States are five, the dispositions of individual minds will also be five [and so on].⁶

When the reasoning and tamping and ruling power is asleep, the wild beast in our nature starts up and walks about, naked and there

⁵ See 'Li Ki,' *The Sacred Books of the East*, Vols. XXVII *passim* and XXVIII, Book XVI. Hsiao Ki.

⁶ PLATO, *The Republic*, tr. by Jowett, pp. 435 ff., 456 ff., 544 ff., 557, N. Y., 1874.

is no conceivable folly or crime, however shameless or unnatural,⁷ [which it may not commit].

Everybody knows Aristotle's saying that "man is a social animal" and his "without law and justice (and society) man would be the worst of all animals,"⁸ not to mention his developed theory of a socio environmental determinism

Later on there were few prominent social thinkers who did not stress the determining influence of various social conditions. On the other hand, we have already seen that an organic conception of a society, as a reality of *sui generis*, appeared long ago. (See chapter about bio organismic theories.) This shows that the school, like almost all contemporary sociological systems, originated in the remote past. Since that time with variations the principles of the school may be traced throughout the history of social thought. Even the works of the eighteenth-century thinkers, "individualistic" though they may be, stress none the less a decisive determining power of social environment. The end of this century and the beginning of the nineteenth century were marked by a strong revival of the organic conceptions of society, by a sharp criticism of individualism and nominalism, by a rein statement of the spontaneous evolution of social institutions independent from individual wishes, and by the idea of the theories of individual dependence upon society. The theories of J. de Maistre, de Bonald, E. Burke, and many others (see the chapter on the "Bio Organismic School") furnish examples of the dominant sociological conceptions of that period. In their essentials they are conspicuously sociologicistic.⁹ These works influenced Auguste Comte in his principal theories in this field,¹⁰ and in his turn Comte greatly determined the corresponding ideas of the contemporary representatives of this school. Let us now turn to their works.

⁷ *Ibid.*, pp. 571 ff.

⁸ ARISTOTLE, *Politics*, Book I, Chaps. I-III.

⁹ See DE MAISTRE, J., "Considérations sur la France," "Les sources de Saint-Petersbourg," "Le Pape," "L'étude sur la souveraineté," "Examen de la philosophie de Bacon," in *L'Œuvres complètes de J. de Maistre*, Lyon, 1891-1892, Vols I, IV, V. DE BONALD, L., "Théorie du pouvoir politique et religieux dans la société civile," *Du divorce*, "Essai analytique sur les lois naturelles," in his *Œuvres*, Vols I, II, III.

¹⁰ See MOULINÉ, HENRI, *De Bonald*, pp. 145 ff., Paris, 1915.

3 SOCIOLOGISTIC INTERPRETATIONS OF E. DE ROBERTY, A. ESPINAS, J. IZOULET, D. DRAGHICESCO, CHARLES H. COOLEY AND OTHERS

E. De Roberty (1843-1915), one of the earliest pioneers in sociology, was born and reared in Russia. He published his *Sociology* in Russian as early as 1876. Its French translation appeared two or three years later (second edition in 1886). Together with E. Littré and another prominent Russian thinker, Vyrouboff, he became one of the principal interpreters of A. Comte's positivism in a special journal founded by E. Littré for that purpose, *La philosophie positive*. A disagreement with some of Comte's theories, which he had already expressed in his "Sociologie," later led him to a formal rupture with positivism and to a designation of his own theory by the name of "Neopositivism."¹¹ He spent many years outside of Russia and gave various sociological and philosophical courses at different foreign universities. After 1909 he was a professor of the Psycho-Neurological Institute in St. Petersburg. In 1915 he was murdered in his home in Tverskaia Province, Russia. He was the author of many books in philosophy¹² and sociology.¹³ Of his sociological works, the most important are *A New Program of Sociology* (Paris, 1904), and *Sociology of Action* (Paris, 1908), in which he sums up practically all the essentials of his theories. The philosophical and didactic character of his reasoning, together with a somewhat "heavy style," have probably been responsible for the fact that his name is much less known than that of Durkheim or Simmel, whose theories De Roberty set forth earlier, and, in some respects more consistently. Among his own predecessors, De Roberty mentions A. Comte, de Bonald, Herbart, Cattaneo, G. de Vitry, and George Lewes.¹⁴ De Roberty's sociological

¹¹ Besides in his books, the principal points of the disagreement are indicated in De Roberty's special pamphlet *Pourquoi je ne suis pas positiviste*.

¹² *L'ancienne et la nouvelle philosophie, Inconnaissable, La philosophie du siècle, Agnosticisme, La recherche de l'unité, A. Comte et H. Spencer, F. Nietzsche, Les concepts de la raison et les lois de l'univers*.

¹³ *La sociologie, L'éthique, Le psychisme social, Les fondements de l'éthique, Constitution de l'éthique, Nouveau programme de sociologie, Sociologie de l'action*.

¹⁴ DE ROBERTY, *La Sociologie*, chapter, "Questions connexes."

system composes something inseparable from his whole philosophical system. Its essentials may be outlined as follows:

1. The world known to us — and it may be known adequately, contrary to the assertion of agnosticism — is composed of three fundamental forms of energy: the physico-chemical, or inorganic, the vital, or organic, and the social, or superorganic.

2. Physico-chemical phenomena are the result, or manifestation, of intra- and intermolecular interaction. Vital phenomena are the manifestation of an intra- and intercell interaction. Social or superorganic phenomena are the result of an intercerebral interaction. Each subsequent class of phenomena represents a specific complication of the preceding one.

3. The transition from one class to another is gradual and only relatively perceptible. This is true in regard to the boundary line between the inorganic and the vital, as well as between the vital and the superorganic phenomena. Besides the usual properties of living substance, life phenomena are often characterized by the presence of so-called elementary "psychical" processes, such as irritability, sensation, feelings, emotion and even by vague concrete images and representations.

4. Contrary to these elementary "psychical" phenomena, the very essence of superorganic phenomena is "thought" and abstract "knowledge" (*connaissance*). The highest forms of superorganic phenomena are the abstract and true concepts, categories and laws of science, generalizations of philosophy or religion, symbols and images of arts, and the rational prescriptions of applied thought, i.e., the rational theories of conduct (ethics). All these are various modes of social "thought" or "knowledge", being found only among human beings, they are the very essence of civilization. "Thought," or "knowledge" or "concepts" are something entirely different from mere irritability, or sensation, or concrete images. In other words, in their pure form the superorganic phenomena are what are styled the highest forms of psychical phenomena.¹⁵ They are embodied as we shall see, in the forms of scientific, philosophical, æsthetic, and applied

¹⁵ See DE ROBERTY, *Nouveau programme de sociologie*, Chaps. I-IV, Paris, 1904, *Sociologie de l'action*, Chaps. I-VI, Paris, 1908. *La sociologie*, chapter, *Questions connexes*."

thought or knowledge, based upon scientific premises. They compose a kingdom entirely different from vital phenomena. The gap between them is no less than between vital and inorganic phenomena. If this is so, then the problem arises, how have they originated? What is the source of their appearance? Why are they found among human beings only? These questions lead to the most important part of De Roberty's theory, which is his "*bio social hypothesis*."

5 *Bio Social Hypothesis*—The factor responsible for the appearance and growth of superorganic 'thought' or 'knowledge' is the intercerebral, (intermental) interaction of biological organisms. The source of "thought" is two-fold. On the one hand, it is *purely biological*, in the form of vital factors which have created the highest organisms, with such a developed nervous system as is necessary for intercerebral interaction. On the other hand, it is *purely social*—*the factor of interaction itself*—without which 'thought' in its scientific, philosophical, symbolical, and practical forms could not appear. However high might be the biological structure of an organism. The reasons for this last statement are as follows. (A) Contrary to mere irritability or sensation, "thought" cannot appear nor exist without language. Similarly, language could not have appeared without a long and permanent intercerebral interaction. *Ergo* no thought could appear without interaction. This is corroborated by the fact that *only among human beings do we find language and only among them do we find "thought"*. Human beings, also, have always been the most social animals. (B) Contrary to erroneous individual images and representations, "thought" and "knowledge" represent what is styled as "accurate" and "true" ideas. They are not an embodiment of incidental and fragmentary individual experience, but rather the incomparably richer *collective experience* of a multitude of generations which has corrected, verified, enriched, increased and completed the inadequate individual experiences. A scientific, philosophical, or any other kind of thought can be really accurate only after it is tested and found adequate by *collective experience*. Of individual experience, we cannot say anything until the experiences of other people have tested and either proved or disproved it. This means that logically and

factually "thoughts," or superorganic phenomena, could not have originated without interaction—it is their logical and factual condition *sine qua non*. (C) Without the permanent interaction of many generations of people, any accumulation of thought or, what is the same, any growth of superorganic phenomena, any development of civilization, any "mental progress" would not have been possible because, without interaction, any individual experience, however right it might be, is doomed to extinction, for it cannot be transmitted to any other man or to any later generation. Under such conditions an accumulation of culture or thought becomes impossible. Impossible also becomes the appearance, existence, and growth of superorganic, or the highest forms of "psychical phenomena." (D) One of the necessary conditions of a conscious psychical process is the existence of various and changing stimuli. When they are few and monotonous they lead to "a mental stupor" and to the transformation of even a conscious process into an automatic or unconscious one. If there had been only a natural environment, such an environment would have been a very poor incentive for the stimulation of mental processes in organisms because it is rather monotonous, it changes slowly, and its variation is limited. Once reached, an adaptation to such an environment would tend to become more and more automatic and instinctive, and no necessity for the development of thought would have been given. Human beings, like many animals, would have become "instinctive" creatures, without any "thought" or "mental life." Since this did not happen it must have been due to the social life of our human ancestors, to their intercerebral interaction, to their interstimulation, and to their "social environment," which is dynamic in its very nature. It is the permanent current of increasingly new stimulation, which, incessantly changing, gives no chance for the transformation of a habit into an instinct. On the contrary, it breaks instincts and forces human beings to make incessant efforts toward a new adaptation to their ever changing social environments, which are stimulating and awakening conscious processes.

These reasons are sufficient to show that, besides the biological factors, social interaction is a condition absolutely necessary for the appearance and growth of "thought" or "mental processes."

This means that "*psychological phenomena*" are the result, but not the cause of social interaction, therefore it is as wrong to try to explain social phenomena through the psychological as it is wrong to explain a cause through its effect. This means that Auguste Comte was right in putting sociology immediately after biology and in omitting psychology. Sociology is a fundamental science of superorganic phenomena based on the data of biology, including that of "physiological psychology," which is biological but not psychological science. *Social phenomena are not to be explained through psychological causes, but psychological phenomena are to be explained through biological and social factors*. Such is the conclusion of De Roberty.

6 Psychology is not a generalizing, abstract science as is biology and sociology, but is a descriptive and concrete science,¹⁶ which describes concrete psychological processes in an individual — psychological biography — or in a definite group — psychology of a definite race, nation or sect — explaining them through an application of the data of biology and sociology. Its position and character are similar to those of geology. Geology is also a descriptive and concrete science. It does nothing but describe the specific geological characteristics and processes of a unique concrete object — the earth — explaining them through an application of the general laws of physical mechanics, physics, chemistry, and biology. In this way, De Roberty draws a sharp boundary line between sociology and psychology. The above shows that De Roberty's insistence on an explanation of psychological phenomena through biological and social factors is not a trifling

¹⁶ De Roberty classifies all sciences under two principal heads: (1) Abstract or generalizing sciences, which analyze the concrete world of the inorganic, the organic or the superorganic phenomena into their components, or elementary units, analyzing the relationship of the units, and formulating the laws of relationship. Such, for instance, are physics, chemistry, biology and sociology. (2) Concrete or descriptive sciences, which study a definite concrete object, for instance the earth, a certain tree, a certain animal, man or group. They describe their object in its uniqueness and peculiarity, and, to explain its peculiar traits, they have to apply the laws of at least two different abstract sciences. Geology is one example of the concrete sciences. It has a specific and unique object, the earth. In order to explain its history and its geological characteristics, geology must apply the laws of chemistry, physics, and even of biology.

De Roberty's classification is in many respects, near to the classification of sciences offered later on by H. Rikkers and W. Windelbandt. See DE ROBETY, *La Sociologie*, and A. Comte and H. Spencer.

and especially D. Draghicesco in his *Du rôle de l'individu*¹⁹ have each given a series of the more detailed corroborations of the bio-social hypothesis. In this respect especially valuable is the book of Draghicesco. He probably more clearly than anyone else has shown the existence of a correlation between social and psychological processes — the correlation in which psychological processes are interpreted as a result of the social processes of interaction. The essence of Draghicesco's argument runs as follows. One of the necessary conditions of intelligence is an existence of *changing and different stimuli*. Under monotonous and constant stimuli even the conscious psychical processes tend to turn into the unconscious and automatic. Geographic environment being relatively unchangeable cannot facilitate a progress of intelligence. Once achieved adaptation to such an environment transforms even a conscious activity into an unconscious one. In the past this environment had to turn a human being into an instinctive creature and in no way could facilitate a development of his intelligence. If this happened the responsible factor was social interstimulation. Incessantly changing and varying it made necessary an incessant effort to a new and conscious adaptation. Through that it incessantly stimulated development of human intelligence weakened instinctive and automatic responses undermined the importance of the factor of heredity and made man plastic and mindful. Such is the first reason why the origin and progress of human intelligence has been due to social interstimulation. Man has lived in the largest and the most complex societies and on account of that he has become the most superior in intelligence in comparison with other animals. The second reason is this. *An ability of discrimination or analysis is a fundamental function of intelligence*. This function is the more developed the more complex is the world in which man lives. With an increase of an environment's complexity man's ability for analysis must increase also; *contrariwise* he cannot adapt himself to his milieu. Adaptation lacking he is eliminated. The most complex environment is the social one and its complexity has been increasing in the course of history because an increase of social differentiation

¹⁹ DRAGHICESCO, D. *Du rôle de l'individu dans le déterminisme social* pp. 121 ff. Paris 1906.

has been a fundamental social process. *Ergo*, a progress of ^{an} analytical or discriminative ability of mind has been due to social interstimulation and to progress of social differentiation. The former has been but a reflection of the latter. The same is true of the synthetic ability of mind as its second fundamental function. It again is but a reflection of a fundamental social process of an integration of small groups into larger and larger ones. This social process has made necessary a parallel development of the synthetic ability of mind. Otherwise, man again could not adapt himself to the environment and had to perish. Thus we have a complete parallelism of the progress of social differentiation and that of the analytical function of mind, the progress of social integration, and that of the synthetic ability of mind. These two functions explained, the fundamental characteristics of a superior intelligence are accounted for. Further, intellectual and cultural progress has been made through inventions. Invention is a lucky marriage of two or more existing ideas. The more intensive is the exchange of ideas among the members of a society, the greater are the chances of an invention. For this reason, social interaction has been the source of intellectual progress. The same is true in regard to an accumulation of knowledge and storing of cultural values. Not being transmitted through biological heredity, cultural values could not have been accumulated had there not been social contact of individuals, groups, and successive generations. Likewise, an integration of human personality, the very idea of self, and the fundamental laws or logic could originate only in a social environment. On the other hand, the facts of disintegration of personality which are well known to psychiatrists are due mainly to the same factor of social interaction, to unexpected, sudden and great shocks, or a too brusque passage from one social milieu to another.²⁰

In a similar way, Draghicesco shows that neither memory, nor association of ideas, not even any concept and abstract generalization is explainable without the factor of social interaction, and its fundamental forms and characteristics. The psychical processes owe their existence to, and are but the psychological reflection of, the corresponding social processes.²¹ Following De

²⁰ DRAGHICESCO, D, *op cit*, pp 162-190

²¹ *Ibid*, pp 190-274.

Roberty, Durkheim and Simmel, he indicates that the individual soul is but a microscopic reflection of the social world. If an individual is a member of antagonistic groups, his psychology will be full of conflicts and contradictions, if he is affiliated only with solidary groups, his "soul" will be "solidary" also. An individual has as many different "selves" as there are groups with which he is affiliated.²² From this standpoint even men of genius are nothing but a product of social integration. They are the men who happened to be posted at the point of cross section or the focus of the mental currents of society. Absorbing the dominant feelings and attitudes of the masses, they combine and systematize them and through them they exert their influence. An alleged irreducible originality of men of genius is due also to the same fact of their being at the points of the cross section of ideas, feelings and attitudes of the masses.²³ Such is Draghicesco's interpretation of the bio social theory.²⁴

A few years before Draghicesco and also partly under De Roberty's and Durkheim's influence, J. Izoulet, professor of the *College de France*, in his brilliantly written "The Modern Society," substantiated in detail the bio social hypothesis, and like Draghicesco, showed that the factor of interaction and association has been responsible for the evolution of organisms from the lower to the higher ones, and for the origin and development of "the social scientific, industrial, ideal and moral senses" in man.²⁵ At the same time, G. Simmel and E. Durkheim in their works and in their own way, developed a series of theories which led to conclusions similar to the above, namely, that the social processes of differentiation and integration are correlated with psychological processes of discrimination and synthesis, that the human mind is but a reflection of a social world and its characteristics, that the logical categories of space, time, causation,

²² Compare SOROKIN, *System of Sociology* Vol. II Chap. VI. PARK and BURGESS, *op cit*, Chaps II-III. DURKHEIM, *Le dualisme de la nature humaine*, *Scientia* Vol. XV, pp. 206-221.

²³ *Ibid*, pp. 295-335.

²⁴ In his later book *L'idéal créateur*, Paris, 1912, Draghicesco tried to show that the greatest contributions to culture have been made at these places and where and when interaction has been most intensive and manifold. It has led to a cross-fertilization of thought. In the same book he tries to show ideals as factors in human behavior.

²⁵ IZOLET, J., *La cité moderne passim*, and especially Livre II.